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AFTER BUSINESS HOURS

Spring-and Hats

(By Philip Crane.)

The views expressed in articles published in this section are those of the contributors and not necessarily those of "The Australasian Manufacturer." They are selected for their interest value, whether controversial or not, and the comments of readers on the subject discussed are always welcomed by the Editor.

ACCORDING to the poet-

In Spring, a young man's thoughts lightly turn to love With greater truth he might have added-

> In Spring a young woman's thoughts seriously turn to hats.

For with the approach of warm unny days, no subject is more intriguing to a woman than the new Spring hats.

Now was this ever truer than it is to-day, when hats are not only of sizes, shapes, and decor previously undreamt of. Their prices have risen in direct proportion to the colossal length of

the feathers with which they are

It is interesting to reflect that the wearing of hats by women is a relatively new idea. Indeed, it is said that women began to wear them only when they became emancipated. Strange as it may Strange as it stole the hats from the men. They have added much to them, of course. Have decked them with birds and flowers and fruits and velvets and ribbons. But, basically, they are trophies won from the male

The hat, as a roomy brimmed head covering, is a direct descendant of the "petasus" of

the ancient Greeks, its individual characteristic being a brim, useful for protecting the wearer from the sun. The early Greek hats were made of felt, as were the hats worn by early peoples generally. Felted hats made their appearance in England about the time of the Norman Conquest. We read in the prologue of Chaucer's 14th century "Conten-bury Tales" that the merchant had "on his lowed a flaundrish beaver but." By the time Good Queen Bess was ruling over Engbeaver felts in many shapes had become very common, and for the following three centuries tine quality beaver hat, generally dyed black, was the recognised headgear of the ruling classes of

Primitive peoples do not wear though savage warriors ntly wear feathers the trimming without the hat. Kings on the contrary, even from the earliest times, have worn crowns, that is, just the rim, Again, that is, just the rim. Again, soldiers, down the centuries, have worn helmets as a protection against the sword-thrusts of their enemies. The ancient Romans. highly civilised though they were. wore no hats at all, simply using the fold of the toga as a headcovering

idea that men should wear hate whenever they are out of doors is a relatively modern idea. though not as modern as the notion that women should wear them

There is not a shadow of doubt that when Saint Paul insisted women should cover their heads in church he visualised nothing like the buts of 1950. Rather was like the hats of 1950. Rather was be urging women to be decently veiled. Indeed, it is quite certain that the provocative affairs of to-day are the very antitues of what the great Apostle had in

Be that as it may, the interesting fact is that women stole the hat from man and changed it from a dull drab head-covering to an artistic delight eat thinkst True, at certain story, men's hats periods of history. were much more lavish and costly than women's are to-day. But, for centuries past, they have been quite conservative about their

silk hut the topper The silk hat the topper-represented the apex of fashion in men's hats. In the 19th century, indeed, not to wear the correct topper for the specific occasion was the most beinous crime a man-about-town could commit.

The topper, of course, was the direct offshoot of the old English seaver. Subsequently the vent to France and, soon Waterloo, reappeared in London in a new form, coming back with the Englishmen from Paris ofter they had made a four of the

This hat, which became the symbol of the age, was attended by a retinue of lesser fry, the bowler, the opera hat, the straw bonter, the deer stalker, the fishing tweed, and a wide array of tweed caps.

A youth of the 19th century setting up as a man of fashion had ting up as a man of fashion had to invest in quite a multiplicity of headgear, and it was part of his education to know when, where, and how to wear it.

where, and how to wear it.

It would seem, however, that
the day of the topper is done
well and truly done. True, on
extra special occasions it endenyours to make a brave comeback. But, generally speaking, has passed into the limbo of t gotten things. Even here, howrole of prophet. For one striking feature of the constantly swirling kaleldoscope of fashion is its dency to revolve in cycles. dency to revolve in the widely-distance for instance. cropped up again in the 18th and 19th centuries after periods of straight-falling folds. And, on present indications, they will be making a yet further appearance in this our own day.
It has also been remarked that

on two historic occasions-in 1780 and round about 1910-1912-very large hats were the prelude to an immense social upheaval, the French Revolution and the Great War of 1914-18. By contrast, however, World War II was preceded by a decade of small hats, some of them ridiculously small. They very gay, if

were, nevertheless, not a little mad. little mad.

Post-war epochs on the hand, have tended to be followed by an outcrop of small hats, worn with short hair. Witness, for

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lowed the Peace of Versailles.

Fashions in hats, as in other articles of clothing, of decoration. and even of art are, however, varied as they are unpredictable. Not even the experts can tell us he experts can happen-or why. It though, that they how they happen—or why. It seems fairly certain, though, that the changes are direct manifesta-tions of man's, and woman's, deeply-rooted desire for change, for variety, for "the something for variety, for "the something different" which gives colour and variety to the daily routine and robs life of the corroding effects

monotony.

One particular interesting theory is that we prolong the conscious ness of our personal existence into ness of our personal existence into any foreign body brought into relationship with the surfaces of our own body. For example, we feel ourselves grow taller with our aigh headgear; move coyly with fluttering laces and ribbons; and feel in the bloom of youth when wearing a youthful-but too youthful-nat. Expanding the theory, the very newness of the article, particularly if it is unntinually arrests our thereby keeping us dert. In order, therecontinually attention, ther-mentally alert. fore, that our clothes in general our hats in particular may yield us the maximum of pleasant sensation, they must not become too familiar either in shape, sensation, they must not become too familiar either in shape, colour, or style. We must, in other words, not only have new clothes and hats, but, perhaps, even more important, new styles. There seems to be no escaping the fact, accordingly, that new

Spring hats will continue to be woman's unsullied joy and-from the point of his cheque book-man's continual nightmare.

At Random

Courtesy is a form of consideration for others practised by civi-lized people when they have time. "Changing Times."

the cloche which fol-the Peace of Versailles. (woman motorist, who, hand out for the turn, had driven past him for the turn, had driven past him and, hand still out, kept on going for the next two intersections.

The policeman pulled up along-side her and asked: "What's the big idea?" The woman explained: "I'm just drying my nail polish."

-"Judy's."

During the war Steve Trumbull, a U.S. newspaperman, was commissioned in the U.S. Navy only to find himself in Indoctrination School He was dozing through a class in Navy correspondence when he was startled into wakefulness by the youthful instructor awing:

"Lt. Trumbull, you imagine you must report on the following incident: Yesterday, a mine-layer was refuelling at a pier when a mine exploded. To whom would you address your re-

Lt. Trumbull discreetly hedged. Lt. Trumbull discreetly neaged.
'This seems important enough to send directly to Frank Knox. the Secretary of the Navy."

"Very well, Lt. Now how would you begin your report?"

Trumbull started dictating.

Trumbull started dictating. "Gosh, Frank, you should have been here last Sunday!"—"Tatler & Bystander" (London).

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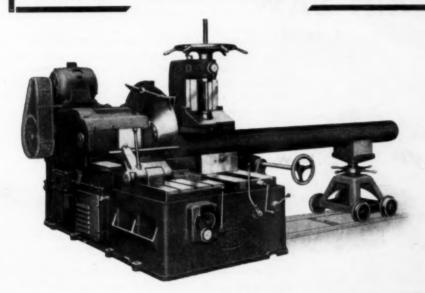
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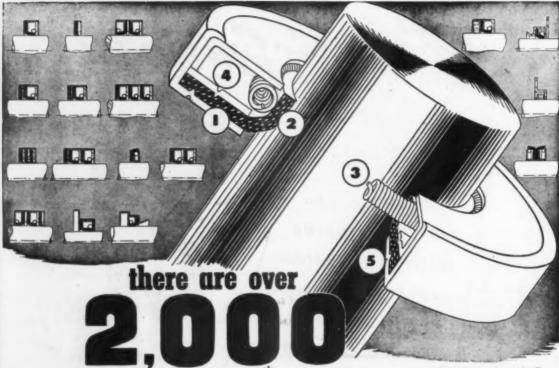


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PAGE FIFTEEN SEPTEMBER 30, 1950.



Good Industrial Relationships

World-wide Searching and Experimenting

Throughout the industrial nations to-day unquestionably the most eagerly-sought objective is management-employee cooperation. For it is recognised that on its attainment are dependent, not only expansion, development, and national prosperity, but also competitive capacity and individual status among the world's industrial Powers. For from effective co-operation derives the high output from which all these good things flow. Indeed, only when the Industrial Machine is oiled with the oil of management-employee understanding, management-employee goodwill, and management-employee earnest and practical co-operation can it function with the skill, the speed, and the continuity that spell high efficiency and high production.

A T the present juncture industrial leaders in all lands are seeking ways and means of fostering good employer-employee relationships—searching for new approaches to the question; endeavouring to breathe new life into old and tried methods; and experimenting along new lines.

A recent outstanding example in the last-named category is the five-year billion dollar industrial peace treaty concluded by the General Motors Corporation of America and the United Automobile Workers' Union.

This bid for industrial peace is of such immense proportions and of so unique and so daring a conception that it cannot fail both to interest and inform management and workers in every country.

In the opinion of experts, the three most important gains which the treaty guarantees for General Motors are, first, security in long-term planning; second, the union's acceptance of the dictum that high wages can be secured by high productivity, and high productivity only; and third, the union's agreement to the proposition that General Motors rank as good employers.

None can dispute the importance of the first point. For, under modern production methods, success can be achieved only per medium of the long-range planning of production, the long-range planning of tool and equipment installations, and the long-range planning of style and model changes. All of which planning is mere guesswork, rather than a scientific proposition, unless it is based on the surety of harmonious industrial relationships. One estimate, by the way, values this freedom to plan at fifteen cents per man-hour to the Corporation.

The second point may be classed as equally vital. For the union's concurrence with the fundamental truth that increases in real wages are to be secured only through increases in output, marks an important forward step. The terms of the contract on this point are clear and concise. It declares: "The annual improvement factor provided herein

(the annual 4-cents-an-hour increase) recognises that a continuing improvement in the standard of living of employees depends upon technological progress, better tools, methods, processes, and equipment and a co-operative attitude on the part of all parties in such progress. It further recognises the principle that to produce more with the same amount of human effort is a sound economic and social objective."

The third point—the union's acknowledgment of the proposition that General Motors tank as good employers—is based on a realisation of the spirit of fair-play evinced by the organisation throughout negotiations. Each party, moreover, has agreed not to re-open the contract, which declares that while negotiations were in progress each party had the "unlimited right and opportunity to make demands and proposals", and that in consequence each "unreservedly waives the right and each agrees that the other shall not be obligated" to re-open bargaining on any point raised in the agreement.

And what of the benefits to the workers? The union leader estimates that the wage increases, the pension deposits, and the other accruing benefits will be worth 19 cents per hour in the first year of the contract, mounting to 35 cents in the fifth year, independent of any fluctuations in living costs. This means that by 1955, employees will have secured an increase of 400 dollars a year over their present-day purchasing power (working on the assumption of 2,000 employment-hours per year), the cumulative increase in real wages over the five-year period being 1,200 dollars per worker, none of which increases may be neutralised by higher living costs, since wages will rise with any advance in the recognised index. Union estimates value the total worker-benefits over the contract period at one billion dollars.

Executives of every industry in every land will do well to watch the implementation of this industrial peace treaty. For in that it places a

THE AUSTRALASIAN MANUFACTURER

[Page 16, September 30, 1950.]

stern obligation on both parties to discharge their respective responsibilities in a spirit of equity, efficiency, and goodwill, it bids fair to become the model of management-employee co-operation schemes. For management, be it noted, obligated itself to provide the latest technological knowledge

and practice, plus better tools, methods, processes, and equipment, no less than it insisted that the union should guarantee continuity of work.

This, indeed, is co-operation on the grand scale. Who knows but that it yet may lead to even finer efforts and to even greater achievements?

Pithy Jottings of Industry and Industrialists

DIRECTOR OF RONALDSON-TIPPETT ABROAD.

Mr. E. J. Tippett, director of Ronaldson Bros. and Tippett Ltd., Ballarat, Victoria, is making an extensive trip abroad, visiting the United States, Britain, Germany, and Switzerland. Main objects of his visit are to study the latest foundry practice and to finalise negotiations for the Australian production of stationary aircooled petrol and kerosene engines.

CONCESSION ON NAIL

The Commonwealth Government recently decided to extend the period in which nails will be admitted free of duty when entitled to admission under the British preferential tariff or at 124 per cent ad valorem

cent., ad. valorem.

Demand for nails still exceeded the quantities made in Australia, it is said.

To keep the price as low as possible, they would be admitted free of duty if they were shipped before October 1.

An extension of the concession would be considered on that date.

VISITING U.S.A. AND EUROPE.

Mr. R. J. Webster, vicepresident of the Associated Chambers of Manufactures of Autralia, left recently by air on a business trip to U.S.A. Great Britain and the Continent. He expects to be back in Australia before the end of November.

TO MAKE ROCK DRILL BITS.

Mr. F. T. Perry, chairman of Perry Engineering Co. Ltd., of Adelaide, recently announced that his Company has acquired a financial interest in Throwaway Bit Corporation of Australia, rock drill bit makers. Plans for the establishment of a plant at Mile End were in hand.

HIGH PRAISE FOR "THE MANUFACTURER."

In its task of serving the secondary industries of Australia, "The Manufacturer" is the regular recipient of generous appreciation by the men conducting the enterprise it exists to serve, as well as industrialists overseas who do business with them. Within the last few days, for example, the following appreciatory communications have come to hand. These moreover are typical of those which flow in steadily throughout each year:—

"We wish to first congratulate you and also sincerely thank you for the excellent editorial write-up you have given our company in a recent issue of The Australasian Manufacturer'. You have combined the activities and details covering certain years right up to announcing and describing our latest line, the cylinder compression tester. We feel we cannot let this pass without at least thanking you and conveying our appreciation of the wonderful interest you have displayed in our company and the products we manufacture."—R.V.B. Engineering Products Pty, Ltd., Spotswood, Vic.

ducts Pty. Ltd., Spotswood, Vic.

"The Board of Directors has requested me to convey to you an expression of appreciation of your recent 'Coolmaster' editorial. It was agreed that the presentation was excellent, and we thank you for the care and effort which gave such a pleaning result."—Wembley Engineering & Refrigerating Co.

Pty. Ltd., Richmond, Vic.

"We wish to acknowledge receipt of the Annual Number of The Australasian Manufacturer, and at the same time congratulate you on a very fine publication. As you are probably aware, trade from Australia to South Africa has increased enormously during the last three years, and we are sure that your Annual has contributed considerably to this development."—Hoskers and Vielkers (Pty.) Ltd., Johannesburg. South Africa.

"Very many thanks for your very fine publication, "The Australasian Manufacturer's' Annual, which you have forwarded to us through the courtesy of Mr. Walsh, of Electronic Industries Imports Pty. Ltd. We must compilment you on the very fine lay-out and would say that we have not got anything in this country up to the standard of your Annual. For your information, this has now taken a very prominent place in our Technical Library."—F. Taylor and Sons (Manchester) Ltd., Pendleton, England.

AMERICAN CAPITAL FOR TUTT-BRYANT LTD.

On his recent return to Australia from the United States, Mr. G. E. Bryant, chairman of directors of Tutt-Bryant Ltd., announced that the Clarkson Equipment Company of Michigan, U.S.A. is to invest American capital in this country in association with his enterprise. "The

new capital." he said, "will extend manufacture of fork-lift trucks and other handling equipment. The Clarkson Equipment Company is the world's largest manufacturer of handling equipment. My company will export Australian-made Clarkson equipment."

This is a profoundly interesting development, fraught with great possibilities of expansion in this important field.

AMERICA PRAISES AUSTRALIAN TYRES.

Sir Frank Beaurepaire, chairman and managing director of the Olympic Tyre and Rubber Co. Ltd., accompanied by the Technical Director, Mr. C. S. Grainger, earlier this year paid a visit to the United States. During their trip they interviewed the management of a large tyre manufacturing industry which, since 1936, has been importing Olympic tyres regularly for experimental purposes. The chairman of this interprise informed Sir Frank and Mr. Grainger that their analysis and tests 'have proved that these Australian tyres are qual to the best overseas product.

C. HUPPERT'S NEW CHAIRMAN.

Sir Herbert H. Oiney has been appointed chairman of directors of C. Huppert and Co. Ltd. Melbourne. The managing director and former chairman of the board, Mr. C. Huppert, is at present on a business trip to the United Kingdom and the United States, from which he is expected to return in some four months' time.

NEW APPOINTMENT BY RE-PLACEMENT PARTS (TAS.) PTY. LTD.

Successor as Manager of Replacement Parts (Tax.) Pty. Ltd., Launceston, to Mr. R. E. (Bob) Moran, who has become Manager of the recently inaugurated Repco Ltd. office in Brisbane, is Mr. Ron Pryor, formerly well-known as Sales Manager of the Tasmanian firm.

The automotive trade will agree that with his sound knowledge of the automotive business and the high esteem in which he is held by his associates, Mr. Pryor is indeed an ideal choice for the important office to which he has been elected.

SUTTON TOOL INCREASES

The nominal capital of the Sutton Tool and Gauge Manufacturing Co. Pty. Ltd., of Northcote. Vic., has been increased, from £20,000 to £250,000 by creation of 230,000 ordinary shares of £1.

SCREENING AND HANDLING EQUIPMENT.

Lockers (Engineers) Ltd., of Warrington, England, announce the appointment of agents in the following States: N.S.W. and Queensland—Norton, Tootiil & Co. Pty. Ltd.; S.A.—Pascoe & Co. Ltd.; W.A.—Atkins (W.A.) Ltd. Negotiations for a suitable agency in Victoria and Tasmania are under way.

Lockers (Engineers) Ltd., are well-known makers of screening and handling equipment, including "Locker-Traylor" electric vibrating screens, feeders, and conveyors, the Locker "Rotex" screener, and "Locker-Titan" mechanical screens.

Factory representatives in Australia are Thomas Locker & Company, 324 Queen Street, Brisbane.

NEW HOLEPROOF SUBSIDIARY.

With a nominal capital of 6350,000, Holeproof Apparel Ltd. has been registered. It will be a subsidiary of Holeproof Ltd.

Ordinary capital will be held by Holeproof Ltd. for the present, as consideration for the purchase of the Box Hill (Victoria) building and other assets.

and other assets.

The subsidiary has been formed to acquire and extend considerably the Holeproof apparel division, including Swann Weatherproof Pty. Ltd., Sydney.

"BLUE BOOK" OF INDUSTRY

Copies of New Issue NOW READY

- (1) List of Manufacturers.
- (2) Articles made in Australia and Names of Makers.
- (3) Trade Marks and Brands.

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STEEL SHEET

C.R.M. DIVISION OF LYSAGHT'S WORKS PTY. LIMITED

JOHN LYSAGHT (AUSTRALIA) PTY. LIMITED — GENERAL SALES AGENTS. SYDNEY: 33 Macquarie Place. MELBOURNE: 70-84 Clarendon Street, South Melbourne. ADELAIDE: 13 Grenfell Street. BRISBANE: 307-311 Queen Street. FREMANTLE: Corner of Short and Pakenham Streets. WELLINGTON, N.Z.: John Lysaght's Bristol Works Limited.

Our oddiorial representation ach State makes regular calls on menuglacterers, but IF FOU wish to occ some particular phase of your business gluon publicity, communicate immediately will the Eddior, and he will carrings for a representation



A digest of new factory and plant construction, additions, alterations and improvements, and operating news of Australian industry.

Putting Punch into the Salesman's Patter

A new brand of salesman will soon be taking to the road. Inbuyers' offices and in privatehomes he will place a compact suitcase on a handy table, connect a small transformer to the nearest power point, and sit back while a 12-minute film sells his wares.

Making this possible is a new Simplex-Ampro 16mm projector, the Repeater, which is to sell for only a few pounds more than the Ampro Premier 20. The manufacturers are Kelvin Hughes Ltd., of quiring only a few seconds) the whole equipment is ready for use.

The film is wound in a continuous loop and can be shown in full daylight. When the end is reached the projector is awifched off. The opening frames then are waiting in the gate for immediate screening as soon as he reaches his next prospect.

Results are described as excellent, even in daylight, and the latex screen is almost nondirectional. The lens, a British can show as many different demonstration films as they care to carry.

Amalgamated Wireless (A'asia.) Ltd. will gladly supply more information to interested readers.

Fast Operating Welding Cable Reels

Save Time and Money

The quick operating welding cable spools illustrated on this page are mounted at the rear of the truck, keep the cable free from

scraps of light weight sheet metal and mounted on a shaft between short lengths of 2-inch by 4-inch wood with steel facing bolted on.



Fast Operating Weiding Cable Reels.—(Photograph courtesy The Lincoln Electric Co. (Aust.) Pty. Ltd.)

Series ven

The "Repeater" projector with its screen in position.

Glasgow, and the Australian agents are Amalgamated Wireless (Asaia.) Ltd. Working to an American design but adding a few improvements of their own, they have built a machine that seems likely to bring about a revolution in sales technique.

The basis of the "Repeater" is the Premier 20 lamphouse with a 500W, 110V bulb, its intermittent mechanism and its sound head. These are combined in a very small compass with a magazine holding up to 400 ft. of film, a rear projection screen of unusual properties, and a small but highly efficient amplifier and loudspeaker. All go into one case.

The salesman who carries one of these "Repeaters" does not need to be a trained projectionist. As soon as the unit is connected to the mains the amplifier starts to warm up, so that by the time the screen is in position (a task remake, has a focal length of 1 in.
and it projects to the rear of the
screen via an aluminised mirror
set up at 45 deg.
Ample power is provided by a

Ample power is provided by a newly-designed amplifier and 6 in. loudspeaker and the sound is of good quality. The "Repeater" is designed for

The "Repeater" is designed for intermittent use; continuous running without an occasional intermission for cooling reduces the life of the film. Carefully handled. however, a properly waxed film will still be useable after several hundred shows. Scratches caused by dust and grit are prevented by two brushes, placed to clean both sides of the film before it enters the gate.

Normally, a salesman will need only one film; this would be wound for him on a special one-sided spool before the start of his tour. But spare magazines, easily clipped into position, are available, so that those who need a variety

kinks and save time in setting up for a field welding job.

The reels are fabricated from The automobile crank handle is used to quickly wind in the line when the job is completed.

Stopping Corrosion

Gaco Linings and Coatings Available to Australian Industry

American methods of fighting one of the great enemies of industry—corrosion—are now available to Australian manufacturers.

Gaco (Aust.) Pty. Ltd., Springvale, Victoria, and of 15ta Albion Street, Sydney, have a range of corrosion-proof linings and coatings for protecting all aorts of process equipment. These can be applied to metals and alloys, concrete or wood. They bring the inestimable benefits of troublefree operation and reduced maintenance coats:

The firm's processes are serving a wide range of industry from paper and pulp, aircraft and shipping, to grain elevators, steel and electrical products.

The Gaco service begins with a "diagnosis" of each corrosion problem. The "doctor" engineers write out a "prescription" for

PAINTING YOUR FACTORY?

Do it with this PORTABLE SPRAY PAINT UNIT





- Many have saved initial cost and valuable time.
- Will handle all finishing materials.
- Special nozzle for ceilings and floors included.

This is a "REILAX" Unit. .

Weight - 42 lbs.

SIMPSON AGENCIES PTY. LTD., 34 Little Latrobe Street, Melbourne, Victoria

The "H.S.G." COLLET VISE



Base dimensions, 8in. z 6in. Total height, 3in. Weight, 14 lbs. NOTE IMPROVED 6-STATION LOCKING SCREW (abovo). Quick and fast gripping. Multiple uses in drilling, grinding, shaping, milling, turning, etc. An essential teo for that awaward job. All cavailable for use with Indexing Attachment. Collets available as required from in. to 11in. in it. atps.; In. to 11in. in it. atps.; In. to 11in. in it. atps.; Sole Australian and N.Z. Agent; H. S. G. WOLFE PTY. LTD.

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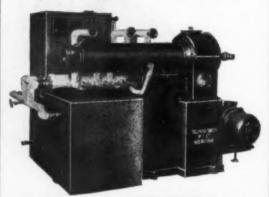


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EXTRUDERS for PLASTICS

Plastics Extruders for Tubes, Rods, Monofilaments and Wire Covering. RIGID AND FLEXIBLE.



2½in. OIL-HEATED EXTRUDER

High Temperature Thermostatic Control — instant cooling, Electrically-heated head.

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each case and treat it individually. These engineers have had wide training and experience in hundreds of manufacturing and processing industries.

Gaco-Neoprene may be used for proofing against almost all acids and alkalis and many solvents at temperatures ranging from —58 degrees F. to 250 degrees F. It has an adhesion to steel of 1,100 lbs. per square inch and a tensile strength of 1,500 lbs. per square inch. It can be applied in either liquid or sheet form.

Gaco-Neofiex is specially recommended for complicated shapes and screen or mesh-like surfaces. It can be applied by dipping if the use of a brush is not practicable.

For use where strong oxidising solutions decompose rubber and where severe temperature and abrasion prevent the use of the more common resins, the firm suggests Gaco-Nitrocote. This is a hard lining which offers high resistance to nitric acids, bleaches and solvents up to 200 degrees F. It keeps its flexibility after cure, eliminating surface chipping. It has an adhesion strength to steel of 1,000 lbs. per square inch.

Gaco-Durofilm is a solution of blended plastics, resistant to most acids or saits at temperatures up to 150 degrees F. It is easily applied, and is air-drying.

The firm's products also include Gaco Natural Rubber, which is in fact natural rubber, selected, compounded and applied according to the firm's specifications. Its makers claim that its performance is superior to synthetics of comparable cost.

A feature of the company's service is that any of its coatings and linings can be applied on the spot, if the moving of equipment to a Gaco plant is not practicable.

The firm, which is the representative in Australia for Gates Engineering Co., Delaware, U.S.A., has compiled data on the corrosion resistance of its products to the various acids, salts and solutions, and will welcome requests for technical assistance in the study of any particular corrosion problem.

When the motor reaches a dangerous temperature, the relay opens the control circuit of the contactor which cannot be reclosed until the relay is hand renet.

This starter is suitable for use with three-phase squirrel-cage meters which, when connected directly to the line, will start the driven machinery in a highly satisfactory manner. Two main types of control are available-integral and remote. The integral controlled type, with built-in "start-atop" push-buttons, has been designed for installation where operation is required at the starter. The remote controlled type, on the other hand, suitable where operation is preferred by one or more remote "start-stop" push-buttons, or for single switch control such as a thermostat. Inching can be arranged, moreover, in conjunction with an Inch push-button station.

Of special interest is the thermal overload relay with ambient temperature compensation, providing as it does positive overload protection of the motor, with consequent elimination of unnecessary stoppages. It is, by the

"Nilsen" Direct-on-Line Starters

Products of the Nilsen Industrial Group

Among the wide number of products turned out by the Nilsen Industrial Group at their up-to-date factories in Victoria, there is a keen demand to-day for the Nilsen Ol30 direct-on-line starter.

This starter consists of a triple

This starter consists of a triple pole magnetically operated contactor and a two-element hand reset thermal overload relay which is mounted on a moulded Bakelite base, clearly marked terminals being readily accessible. Designed for shaft operation, the contactor is equipped with a full floating magnet system which is fitted with a continuously rated closing coil, the hard drawn copper contacts operating with a rolling and wiping action. The relay is of the bi-metallic type with overhead heaters possessing temperature operating characteristics closely resembling that of the motor.

way, particularly adaptable for refrigeration work.

The outstanding features of the Nilsen OJ30 starter, in short, may be summarised as under:— (1) Positive Overload Protection:

(i) Positive Overload Protection:
Dependable bi-metallic thermal overload relay with
interchangeable heater range,
load adjustment on site, and
ambient temperature compensation ensure safe motor
operating temperature, without unnecessary stoppages.

out unnecessary stoppages.

(2) Undervoltage Protection:
With "Start-Stop" 3-wire control or undervoltage release
with 2-wire switch control by
the magnetically operated

contactor.

(3) Easy Installation: A seat wall mounting case with ample connection space and readily accessible terminals facilitate wiring. (Wiring diagrams and instructions are included in every starter).

included in every starter).

(4) Long Operating Life: Hard drawn copper contacts operate with a rolling and wiping action, keeping the area the contact tips, thus ensuring that the working surface is unimpaired. (Effective archutes minimise arcing. Self-aligning magnet system and effective shading rings combine for quiet operation.

bine for quiet operation.

(5) Operator's Safety Assured:
Operator is protected as all
live parts are completely enclosed. The thermal overload is reset by an external
push-button without removing the front cover.

(6) Low Maintenance Costs: Contacts can be readily inspected and replaced. Moulded base, shaft and other parts, as well as accurately pressed and machined parts, ensure that all components can be renewed seally.

newed easily.

(7) Adaptability: Overload relay heaters are readily interchangeable and cover a full range of motor loading values. Adjustment of load on site is provided for any heater.

Unless otherwise specified, the starters are supplied for 415 volt. 50 cycle supply. In addition, types for 28 and 40 cycle supply are available.

The distribution and sale of this ultra-modern electrical apparatus is in the capable hands of Nilcrom Electrical Sales (Aust.) Pty. Ltd., 46 Bourke Street, Melbourne, and 26 Market Street, Sydney, representatives of which organisation will gladly supply further particulars to interested engineers.

NEW PLANT FOR SYDNEY COTTON MILLS.

Mr. C. D. S. Moore, chairman of Sydney Cotton Mills Ltd., announced at the recent annual meeting of the company that new equipment due to arrive shortly will assist in partly satisfying the increasing demand for the company's products and will enlarge the volume of sales. Additional plant on order is expected to arrive within the coming twelve months.





Write for the "MAR-BRITE" PRICE FOLDER, containing full price lists, specification sheets, tolerance tables, etc.

MARBRITE' BRIGHT STEELS

"MARBRITE" BRIGHT STEEL is manufactured in completely modern plant, to standard specifications, from specially prepared raw materials.

Metallurgically controlled on a commercial basis, through all processes, "MARBRITE" BRIGHT STEEL can be supplied in a wide range of grades and in sizes and sections to suit most needs of manufacture.

The following classes and grades are standard:

ORADE 1 — Shafting.
ORADES 1B, 1A — High Tensile Shafting.
ORADE 2 — Semi-Freecutting Steel.
EXTRA SUPER — Freecutting.
LEADER — Freecutting for specialised purposes.

GRADE CH2 - Case hardening.

Supplied in all "Marbrite" Grades, to Standard or Special Tolerances.

BRIGHT ALLOY STEELS -

"MARBRITE" L5—3 per cent. Nickel—Case Hardening.
"MARBRITE" Q5—Nickel Chrome—Case Hardening.
"MARBRITE" L10—Nickel Molybdenum—Case Hardening.
"MARBRITE" Q7—Nickel Chrome—High Tensile.

"MARBRITE" R4 — Nickel Chrome Molybdenum — High Tensile.

AIRCRAFT STEELS -

To Standard Specifications

"MARBRITE" Rounds, in Grade CH2 and other suitable grades, can be supplied oversize to provide for grinding, after heat treatment.

Special Sections — A comprehensive range is available against order.

Precision ground bars are manufactured to Standard tolerances with a wide range of Round sizes from lin. to 6in. diameter. Table A tolerances are within +.000-.002 down to within +.00025.-.00025.

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Industrial Vacuum Cleaner

Although a powerful machine of some 55 in. water lift, strongly constructed, and able to deal with dust and swarf of every description, a new industrial vacuum cleaner is easy to handle in confined spaces, having small wheel-base and low centre of gravity.

Dust is collected in a strong canvas bag of 1½ cu. ft. capacity in the upper part of the vertical

mounted in the base and have a maximum consumption of 1,200 W. The whole unit is mounted on a pair of pneumatic-tyred wheels with one ball-bearing castor at the front. It is wheeled like a sack barrow or will follow wherhose. Racks are provided to carry suction nozzles and also the hose when these are not in use

Bodies are available in abrasive and corrosive resistant com-pounds, neoprene for oil resist-

ance, butyl rubber for heat and acid, and pure gum stock for food and beverages. [2590].

Inverter Holds Frequency to 0.1 Per Cent

The inverter illustrated transforms 28 v. d.c. to 400 (± 0.1 per cent.) cycles per second, 115 v. (± 1 per cent.) single phase and/or 115 v. (± 3 per cent.) three phase. Inverter features are exceptional frequency and voltage stability over extreme ranges of temperature, altitude, load and input ranges; and absence of mov-ing parts, Output is 100 va.. power factor 0.4 to 0.8 lag, weight 19 lb., volume 620 cu. in. The transformers, reactors, etc., are impregnated to withstand abnorimpregnated to withstand abnormal environmental conditions; all relays, potentiometers, etc., are hermetically sealed. Condensers, resistors, vacuum tubes, and standard parts are JAN approved wherever possible.

The new inverter consists fun-damentally of four sections: (1) Frequency generator, (2) Single-phase inverter, (3) Voltage regu-lator, and (4) Phase adapter.

The frequency generator is composed of a precisely tuned.

miniature tuning fork within a
hermetically sealed, constant temperature envelope. This fork. incorporated in an electronic cir-cuit, furnishes the power to drive the inverter thyratons. The fi

The single phase inverter section, comprises a transformer, and specially designed commutating condenser, in conjunction with two thyratron tubes, arranged in a parallel type inverter circuit.

The voltage regulator section in composed of a single bridge circuit which controls a saturable re-actor. This permits recovery of output voltage within a second. The phase adapter section is composed of a variable inductive leg and a variable capacitive leg. By electronic means, the sensing and control of the phase angle and voltage of each phantom leg is maintained.

The inverter incorporates automatic "kick-out" and "recycling" system as well as a fused input line. During excessive overloads, the kick-out will



The four component parts are mounted and enclosed in an aluminium housing. All parts and assemblies are accessible. Electrical connections are made by an AN connector plug.

automatically stop the inverter, before blowing the fuse. After a period of three seconds, the recycling device re-starts the verter. This system resto verter. This system power without manu restores power without manually re-starting or replacing fuses, after a short or other excessive load appears across the output.

time is 25 Initial warm-up seconds. [2591].



An easily handled vacuum cleaner for use in industry.

cylindrical sheet steel container. This bag can be removed and re-placed in a few seconds. The power unit consists of two high velocity motor-driven fans work-

The machine can be converted The machine can be converted instantly to high velocity blowing for the removal of dust from the insides of electric motors and other places difficult of access. [2597].

Valve Pinches Rubber Neck to Stop Flow

A new rubber pinch valve is A new rubber pinch valve is offered for use in the mining, paper, chemical, oil, food and beverage industries. The new unit is designed to replace metal valves in pipelines carrying abrasive or corrosive mixtures. Pipe misalignment is taken up by the rubber neck and no packing or re-

packing is required. Vibration and water hammer are absorbed and a positive seal is given in the closed position. The metal and a positive seal is given in the closed position. The metal parts can be refitted to new rub-ber valve bodies when replace-ment is required. Galvanic action in metal lines is broken by the insulating rubber connection.

OIL HYDRAULIC



SOLENOID OPERATED DIRECTION CONTROL

VALVES for hydraulic circuits requiring electric control



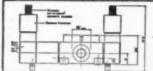
Suitable for working pressures up to 2000 lbs. per square inch, and for oil flows up to 75 g.p.m.

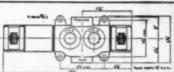
CAPACITIES: Valves are available in sizes with standard pipe connections from § inch to 3 inch. The 1§ inch and 3 inch sizes have flange connections screwed B.S. pipe threads.

TYPES AVAILABLE: Pilot circuit control valves. Main circuit control valves, 2, 3 and 4 way. Closed centre, open centre or semi-closed centre.

APPLICATIONS: Electrically timed moulding press circuits. Remote control heavy hydraulic press circuits. Circuits for bunker doors, furnace doors, etc.

Complete Specifications and Data Sheets will be forwarded upon request.





INDUSTRIAL SERVICE ENGINEERS PTY. LTD.

ASHLEY STREET, BRAYBROOK, VICTORIA, AUSTRALIA

24/HP 12

LEWMEX Wises

Copper conductor insulated with a film of synthetic enamel which is unparalleled for toughness and resistance to abrasion. LEWMEX is available in four thicknesses of insulations. If you have a coil-winding problem send for detailed literature and samples of LEWMEX.

LIVERPOOL ELECTRIC CABLE CO. LTD.

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RISBANE Intercolonial Boring Co. Ltd., 459 Ann St.

HOEART Wm. L. Buckland Pty. Ltd., 57 Liverpool St.

LAUNCESTON Wm. L. Buckland Pty. Ltd., 38 Charles St. NEWCASTLE .. P. W. Saddington & Sons Pty. Ltd., 33 Watt St. PERTH R. P. McInerney & Co. Pty. Ltd., 441 Murray St.



Fullers' Earth enters the Foundry!

In 1941 the Fullers' Earth Union Ltd. of England introduced "Fulbond" as a new member of the Fullers' Earth family. Since then several grades have been developed to suit widely differing foundry practices, until, to-day, there are five standard grades -Fulbonds IA, 2, 3A, 4 and K,

Fulbonds are manufactured from the unique clay mineral, montmorillonite. These are entirely new bonding agents with their own particular properties, and they find their main applications:

- (1) In synthetic moulding sand mixes.
- (2) For reclaiming or strengthening natural moulding sand.
- (3) As a core binding material, usually in conjunction with an organic binder.

A small addition of Fulbond in place of large additions of new, natural sand maintains the strength of the foundry sand, enables considerable savings to be made, and entails only a very small change in foundry sand practices.

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Hardening Furnace for High-Speed Tools

With its main function being the hardening of high-speed tools, a hardening furnace has recently designed and manufactured Where the output required is of such an intermittent character that a separate secondary hardening equipment cannot be justified.



The preheating chamber of this new hardening furnace can be utilized for a lower temperature operation.

the preheating chamber, with the preheating chamber, with a maximum operating temperature of 940 deg. C., can be utilized for the lower temperature operation. The hardening chamber has a maximum operating temperature of 1,350 deg. C. Each chamber, independent of the other, possesses its own control unit and although similar in extends among the present of the control of the con though similar in external appear-

ance each having the patented apring-operated, vertical lifting spring-operated, vertical lifting doors, the two chambers differ considerably in internal struction necessitated by the different temperature ranges. Both are internally heated, the preheater having nickel-chromium coil elements while the high temperature chamber elements are of the silicon carbide type with equipment to enable compe with equipment to enable compen-sation to be made as these latter elements age. Atmosphere con-trol is provided by the Paragen burner system for each chamber and is supplied by a pipe-line from a single container and pump at the rear of the equip-ment. The casework encloses all element connections and control units, but these are readily ac-cessible for maintenage purposes. cessible for maintenance purposes by the removal of the guards. Necessary controls for operation are conveniently placed so that the equipment presents a smooth exterior with the minimum of projections and is a self-contained unit occupying a floor space of 57 in. by 44 in., the approximate weight being 6 cwt. The standard equipment is suitable for operation on 190/280 volts, single phase, 50 cycles ac. supplies or between cessible for maintenance purposes tion on 180/200 voits., single phase, 50 cycles a.c. supplies or between two lines and neutral of any standard 350-460 volts., three phase, 50 cycles system. Semi-standard models can also be provided for other systems and for dc. supplies. Rating: Total 9 kW (preheating chamber 4 kW, hardening chamber 5 kW). [2582].

Inter-Check Gauge

Shown in the accompanying illustration is a new Inter-Check gauge, recently introduced. This instrument has been designed to provide an accurate means of measuring internal threads, splines, recesses and small bores, and can be adapted to suit the particular type of work by interchanging the mandrels which carry appropriately-shaped meas-uring contacts.

Screw threads ranging fe-in. to 2-in. diameter, and of any form or pitch, can be accom-modated. Taper, ovality, and bell-mouth conditions can be detected. while any deviation from nominal effective diameter can tained by using truncated thread form measuring contacts. Other appropriately-shaped contacts pro vide for the measurement of root and crest diameters.

Three mandrels are provided for measuring bores, these covering to the in. diameter; to in. diameter; and for its in. diameter; and for its in. diameter, while a further range of mandrels is available to measure recesses from 1 to 1j-in. diameter, each mandrel having a range of i-in.

The dial indicator mounted on

the pistol-grip workhead provides

an easy means of reading the de-viation from true size. Compresviation from true size. Com sion of the trigger causes measuring contacts to contract, so that they can be inserted into the hole or form to be measured, and on releasing the trigger, spring



New Inter-Check Gauge.

expands the contacts pressure

firmly into the hole.

Interchanging of the mandrels is readily accomplished by releasing a single clamp acrew, changmandrel. the and tightening the clamp screw. [2595].

Vertical Instrument Steriliser

The conventional individual-practitioner steriliser has various disadvantages. One is its shape: the shallow box construction en-tails piling instruments horizont-ally on top of each other, so that before use, each has to be fished out with aseptic precautions, and, in some cases, e.g., dental or artery forceps, carefully opened. Articles such as small bottles cannot be sterilised. Another weak-ness is design: the metallic case conducts heat from the boiling water used for sterilisation, and may thus burn the hand if accidentally touched. The cover, whether of hinge or box type, often spills the steam condensate messily outside the steriliser. These defects are eliminated from a new steriliser which also

possesses advantages of its own.

An extremely versatile instru-ment, it has been developed by combining functional design with up-to-date materials.

The underlying concept is ver-tical sterilisation: the instruments hang downwards during treatment, already opened, if necessary. This calls for a deep box, and means of suspending scalpel blades, scissors, etc.

Within the steriliser is fitted removable tray, built deep at the base and with transverse bars. The tray is attachable by rings to the lid so that the two are removed together when sterilisation

complete.
Operation is as follows: the instruments are hung from the bars, small bottles aligned on the tray, the lid attached, and cur-rent turned on. No harm can from touching the outside, insulated by a heat resistant plas tic coating; no condensate can drip outward from the stepped lid. A pilot light indicates proper working; a cut-out fore-stalls accidents if the steriliser boils dry, [2555].

Novel Rust Inhibiting Lead Paint

Inorganic chemistry has made a contribution to the fight st corrosion. Corrosion's against major manifestation, rust on iron and steel, could, if completely unchecked. overthrow industrial civilisation to which their import-ance is vital. The average yearly tonnage output of these two metals is roughly eleven times metals is roughly eleven times that of all others combined. Many new methods of preservation have recently been devised, such as a vapour, based ultimately on roleum, and sodium benzoate, a coal tar derivative, both organic compounds.

The latest advance depends on a new inorganic compound. Its primary purpose is as a base for paint primers. The problem here is not one of simple rust-inhibition, because paint, while FIRST STOCKS IN AUSTRALIA

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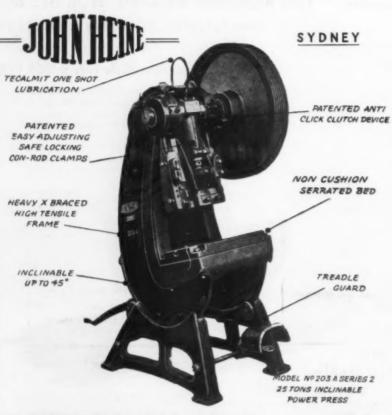
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protecting, also decorates, i.e., the ideal primer must therefore both prevent corrosion and look attractive.

Lead peroxide has long been known to possess rust-inhibiting properties, and is the active agent in red lead. This same lead per-oxide has been incorporated into the nev compound, calcium

On this basis, after many years of research, has been developed the new primer. Its inhibitory powers are outstanding: in the gruelling conditions of continuous gruelling conditions of continuous salt-water immersion, its stated life is 90-112 days, as against 10-14-days for other standard inhibitors. It resists bilistering, cracking, and scaling (for 4 years in certain tests). It still affords some protection, if accidents break its surface. The latter, which has the obscuring power of white lead, has an egg-shell gloss finish, with no sign of brush marks. [2530].

Automatic Switch Allows Safe Testing

The door switch assembly, illustrated on this page, automatically cuts off the power circuit when a high frequency cabinet door is opened, thereby safeguarding personnel who have occasion to open cabinet doors on high frequency radio, radar, X-ray, television, in-



dark cased, snan-action The dark cased, snap-action, precision switch is normally operated by the cabinet or control box door. For testing purposes, the push rod is moved in manually.

duction heating and other elec-

tronic control equipment.

The unit consists of a combination mounting bracket, rod actu-ator, and a roller lever operated, ator, and a roller lever operated, sapaction precision switch, operated by opening and closing the cabinet door. Personnel can close the cricuit for checking by manually moving the rod actuator to the maintained contact position. The actuator automatically setumed to the companion of the control of the control operation. returns to the normal position when the door is closed. The next door opening breaks the circuit.

This interlock switch assembly has single-pole, double-throw circuit arrangement, with electrical rating of 10 amp. 18 v, dc., non-inductive load, 6 amp. 28 v., dc., inductive rating. The unit measures 1½ in. long, by 33/64 in. deep, by 1-9/16 in. high. [2592]. This interlock switch assembly

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Taylorix Autographic Accounting Unit

New Accounting Aid-A Product of Lamson Paragon Ltd.

An accounting unit new to the Australian market has recently been developed by a division of the well-known suppliers of business stationery and systems, Lamson Paragon Ltd.

Known as the Taylorix Autographic Accounting Unit, it opens up a new and simplified method of accounting for factories, workshops and offices, offering many of the advantages of mechanical bookkeeping where the size of the establishment does not warrant this major outlay.

Well known and widely used in Europe for many years, particularly in Norway, Sweden and Denmark, the Taylorix System consists essentially of a specially constructed Writing Board upon which, by means of an attached mechanism and the use of carbon paper, several different accounting records are held in perfect registration and written simultaneously by hand

TAYLORIX is suitable for any system which normally involved transcriptions such as the writing up of Sales Ledger, Debtor's Statement and Sales Journal at the one time; the simul-

money and varying overtime rates to produce a wide range of differing amounts in a comparatively small payroll.

Normally it is necessary to transcribe this information from packaging, simply followed instructions for operation, and so on.

The Double "Laminex" Base Board which has been chosen as the writing platen for the Taylorix Autographic Accounting Unit has whole area of that portion of the paper which is held by the pins, while the mechanism, which is situated on the left-hand side of the board, is operated by three keys which work independently to release either set of pins or the clamping bar or lock together to release all at the same time when it is required to clear the board.

Each sheet or the carbon may be removed individually and replaced without upsetting the register as a whole, and any reasonable number of further sheets and carbons required to operate a given system may be added subsequently.

The finished article, after 18 months of trial and research, conforms to a remarkable degree to the original conception. The moulded plastic construction of the Unit has brought its cost to within easy reach of the average smaller factory or workshop, but at the same time has required extremely accurate machining to finest tolerances, 1/2000th of an inch, for instance, in the three main mouldings.

Mass assembled on the modern, attractively situated premises of Lamson Paragon Ltd., The Boulevarde, Richmond, Melbourne, from components produced by specialists in their various spheres, each Unit is rigidly inspected and tested before being packaged and distributed through branches in every State.



Lamson Paragon Ltd., printing works set in ideal surroundings on the Yarra Boulevard, Richmond, Melbourne.

taneous writing up of Receipts.
Cash Book and Bank Deposit
Silps; and in the preparation of
Sales and Purchase Records, or for
Lay-by systems.
Taylorix is of particular interest

Taylorix is of particular interest to manufacturers and factory executives for the accurate and almost error-proof compilation of Pay Roll Records for firms of from 20 to 200 employees or more, and also for Stock Control Records.

In the writing of Employee's Record of Earnings Card, Wages Sheet and Pay Slips in one operation, its simplicity and error eliminating features are much appreciated by factory executives in these days of payrolls complicated by incentive payments, bonuses, tea

the Payroll to the Record of Earnings Cards. By the use of the Taylorix Unit this procedure is carried out with one writing thereby eliminating the possibility of posting errors.

Developed in conformity with overseas trends, the Taylorix Autographic Accounting Unit is produced entirely in Australia. Fulfilling to perfection its allotted task, it presents an interesting project from an Industrial Designer's point of view, having been developed under expert planning from an expressed functional requirement to its mechanical fulfilment, taking in all the problems of attractive design, economical

proved during 18 months of research to be an ideal writing surface for all conditions encountered in Australia. Warp proof in the tropics, this surface produces none of the discomfort often experienced in the use of metallic surfaces in colder climates.

The clamping mechanism, which is covered by an attractive mouldid plastic shield, is of particularly ingenious and efficient design and provides for the differential clamping of carbon paper by a bar, a master sheet by a row of pinz, and the last form by an independently operated further set of pinz.

As each separate pin is independently sprung, this ensures even and firm pressure over the



Taylorix autographic accounting unit in use.



Taylorix equipment: Accounting unit with forms, filing box, binder, ball point pen, packing carton, and sales representative's case which has been designed to accommodate a unit and all the necessary forms for the various systems employed on Taylorix.

Special cartons have been evolved for the protection and despatch of the Clamping Unit, baseboards being forwarded to branches separately, thus saving up to 50% of handling charges. When baseboard and clamping mechanism are fitted together on their arrival, the top of the carton is retained as a dust cover for the protection of the mechanism when not in use.

Sales of the Taylorix Accounting Unit are handled only by Qualified Accountants and step by step instructions are available for its adaptation to each system.

A complete set of accounting records can be kept by its use minimising postings (and therefore the possibility of posting errors) thus making it possible to take out a trial balance at any time with the almost complete assurance that it will be correct. In addition it reduces considerably the amount of clerical work involved in gaining the information from an efficient system of book-keeping.

The records produced on the Taylorix board are made on forms which have been designed and printed to ensure perfect registration while writing is in progress so that the full advantage of the

system may be obtained.

Filing boxes and binders have also been manufactured in conjunction with the Unit so that Taylorix represents a complete and systematic means of recording business transactions with as little writing as possible. All the advantageous features of conventional double entry book-keeping are retained and are achieved with a minimum of clerical labour by its use.

Actively engaged in Australia in the production of business stationery and systems since 1896, in which time the "Paragon" trade mark has become a byword in the various branches of business, bookkeeping, and accounting, Lamson Paragon have always been to the fore in fostering labour-saving innovations and increasing accuracy any efficiency in the business world.

Securing in 1984 the Australian and New Zealand rights for the

Parafold continuous stationery typewriter attachment, Lamson Paragon Ltd. installed their first fanfold press in Sydney in 1936 and so took a leading part in promoting the use of sig-rag folded style continuous stationery to be used with this and the succeeding Parabar and Paratype attachments.

Another popular innovation was the "Speediset" system of sets of forms with one-time carbon already inserted for use either by hand or in a typewriter and highly suitable for pegboard and other punching, perforation and numbering.

Other products which have gained wide popularity are Restaurant and Hotel Checking Books, the Life Leaf duplicate system as an adjunct to the Plic pen carbon book, and continuous carbon-interleaved stationery with marginal punchings to engage with the sprocket platens for Teletype and Teleprinter use and for electric accounting machines.

Besides the large range of stock lines in books and forms which has been built up in over 50 years of trading, attractive wrapper printing has become a feature of the production of Lamson Paragon Ltd. and this is done on the most modern machines.

In the binding department a wide range of sales check book covers, Life Leaf Ledgers, binders and indexes, and the ever-popular Paragon self-binders, arch-post binders, and delivery note bolders are produced.

In the interests of office efficiency a large cabinet-making and woodworking section is also maintained and this employs a number of craftamen who, with the aid of



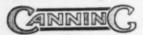
Taylorix autographic accounting unit set up with the necessary forms to write the weekly pay roll. (A) Record of earnings card. (B) Pay roll. (C) Perforated pay slips for insertion in employees' pay envelopes.

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up-to-date machinery, construct filing cabinets and trays, staggerand peg board files, cash drawers and sundry wooden system equipment.

In Sydney and Melbourne, up-todate engineering departments are also maintained to service typewriter attachments and autographic register continuous stationery installations, and for general equipment development. Service cars are also available to provide outside maintenance to office equipment and it is this guarantee of service which has placed the products of Lamson Paragon Ltd. in the popular position which they enjoy in Australia to-day.

It is this background of 50 years of service and familiarity with the office problems of industrial and business organisations which commends the attention of all to the Taylorix Autographic Accounting Unit, the latest product of the technical staff of Lamson Para-

Produced by experts after full research and trial, installed by qualified accountants and serviced by competent technicians, it represents the answer to the book-keeping problems of a great many offices-particularly the mediumsized factory where rapid growth and technical progress has tended to outstrip office organisation,

AVOIDING BLACKOUTS.

Emmco, Waterloo, Sydney, now overcome its difficulties from blackouts and the 30 per difficulties restriction on use of elec-l power. Initially, Emmco cent. trical power. Initially, Emmcoinstalled a McLaren 55 KW generating unit so that its key 'bottleneck" operations could continued regardless of power failures.

thereby were so substantial that Emmoo has just installed a 400 KW Petter-Brush generating unit to a 400 KW ensure continuity of manufacturoperations

Even though the supply authorities expect Sydney's power supply difficulties to be overcome within three years, Emmco finds that its auxiliary installa-tion should pay for itself in less than half that time, as well as provide a backstop for very many years to come.

RICHMOND, VIC., TO HAVE MODERN POWER HOUSE.

The State Electricity Commission of Victoria is to modernise the power house at Richmond, one of the cldest in Australia. To this end, new generators and turbines ordered by the Commis-sion from England and Switzerland are to be installed. A new Swiss 38,000 kilowatt generating complete with oil-fired boilers, is to cost upwards of £1,100,000. This, with one of its two boilers, is scheduled to come into opera-tion in time to meet next winter's



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| TABLE OF COMPARISON | Component. | Sharples Process. | Kettle Process. | Next Saap | Call Street Saap | Call Saap | Call Street Saap | Call Saap |

We suggest you write for Bulletin 1241 — a detailed study of the process. Thereafter, Sharples technical men stand ready to help from initial survey to on-stream production.

THE SHARPLES CENTRIFUGAL SOAP PROCESS

This does not mean magic of the Aladdin-lamp variety, but the realistic magic of hard facts as exemplified in the table of comparisons shown below. Under the Sharples process, note the low lye-ratio as well as the high glycerine and low salt content of the spent lye. Furthermore, steam consumption is reduced to only 15-20% of the kettle process requirement,

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It is possible, in many cases, to expand total soap production by installing a Sharples process — and with no increase needed in capacity of steam plant, lye treating house or glycerine house.

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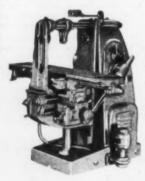
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Victoria valid Chairs. Mechanical Assemblers, rear 38

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A NEW HOME HAIR DRYER.

The increasing demand for hair dryers is probably due in part to the rapid growth of "home perms". Lightweight hair dryers, safe and easy to use with comfort in the home, hand held or on a table stand, are what are being asked for to-day.

To provide this answer to the pressing need for electrical appliances, the G.E.C. has produced a greatly improved hair dryer of particularly modern appearance.

The new G.E.C, hair dryer can be held in the hand in the conventional manner, but it can also be used as a table model (fixed in a special stand which is supplied as no optional extra) so that the user may read, or pay attention to other forms of beauty culture, while the hair is being dried.

The dryer weighs only 2 lb., and the comfortable handle has two control switches arranged conveniently so that they can be operated easily by a flick of the thumb to provide a stream of warm or cool air or to switch the dryer on or off. A moveable stem on the stand fits into a recess in the base of the handle of the dryer and allows the user to direct the air stream as required, leaving both hands free.

The consumption of the motor is 30 watts and with the heater switched on, 550 watts. The heater element is wound on a ceramic former and the dryer is supplied with a 6 ft. length of twin circular cream coloured flex. The body of the dryer is a cream plastic moulding, and the stand is an aluminium die-casting, cream enamelled to match.

British General Electric Co. Pty. Ltd., sole Australian representatives of the General Electric Co. Ltd. of England, will have supplies of this new G.E.C. Hair Dryer for distribution very shortly.

BIG ELECTRICITY PROJECT ORDER.

The Victorian State Electricity Commission is importing from America a fleet of 48 huge road tankers, costing 4465,000.

The tankers will be used to haul cement to the commission's Kiewa project, 200 mlies from Melbourne.

The commission's chairman, Mr. R. A. Hunt, said that the vehicles, like enormous milk tankers, would carry the cement between the S.E.C. railhead at Bandiana and the Bogong High Plains.

This was a haul of 80 miles, with a climb of 4,600 ft. in the last 25 miles

The trailer tank part of each vehicle would be made in Australia

The Victorian Railways were constructing special 40-ton rail trucks to deliver the cement to Bandiana.

Storage silos capable of loading and unloading bulk cement at the rate of over a ton a minute would be installed.



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4,000 lb. CASTING FOR NEW G.E.C. TRACTION MOTOR.

A steel casting for the shell of a traction motor to be installed in one of the forty North British-G.E.C. electric locomotives for South Africa will be exhibited the Castle Bromwich section of the British Industries Fair, on the stand of Edgar Allen & Co. Ltd., by whom these castings are being produced. The casting weighs 4,000 lb. before machining, and is 3 ft. 8 in. high by 2 ft. 6 in. long. There will be six traction motors in each loco-motive, and they are believed to be the most powerful ever accommodated in a design for a 3 ft. 6 in. gauge railway, the locomotive rating being 3,050 h.p. The motors and all other electrical equipment for the locomotives are being built by the General Electric Co. Ltd., of England. The order for the locomotives was placed by the South African Railways with the North British Locomotive Co. Ltd., who are working in close association with the General Electric Co. Ltd. of England, over this valuable order.

The G.E.C. is represented solely in Australia by the British General Electric Co. Pty. Ltd.

APPRENTICESHIP INVESTIGA-

The Director of the Associated Chambers of Manufactures, Mr. L. Withall, has informed the Federal Government that his organisation considers that its proposal to appoint an apprenticeship investigation committee would constitute a reflection on the Commonwealth Arbitration Court and apprenticeship tribunals. He also held that such a committee would duplicate investigations by members of the Chambers, who employ more than 70 per cent. of industrial apprentices.

It will be recalled that at the conclusion of the recent Fremiers' Conference, the Federal Government announced that the Apprenticeship Investigation Committee would examine problems involving educational requirements, apprenticeship conditions and wages. The Government moreover, already has announced a scheme under which British migrant apprentices may complete their training in Australia, while under the 1981 migration programme, apprentices may also be included among European migrant tradesmen.

Mr. A. N. Curphey, secretary of the Victorian Chamber of Manufactures, supported Mr. Withall's contention, holding it had the backing of all Chambers throughout the Commonwealth.

Industrial Minerals

Siliceous Abrasives Laboratory Standardise 4, Ground and Processed to Specification by

Austral Rock Milling Pty. Ltd. GLADSTONE STREET NEWTOWN, N.S.W. Thone: LA 2503

PORTABLE ELECTRIC SAWS.

A new, low price 6 in. Thor portable electric saw with the same heavy duty construction and ex-clusive features included in larger, higher priced models previously re-leased in the company's new "Silver Line" is announced by Independent Pneumatic Tool Co.

The exclusive features of the new saw include long shaft transverse motor mounting for extra power and longer life-no power-wasting worm or bevel gears; die cast aluminium housings; steel inserts for bearings and threads to maintain critical parts in permanent alignment; built-in saw blower, which blows from the inside and keeps the cutting line clear and motor free from dust; steel rip guide with adjustments for any thickness or material being cut; thickness or material being cut; giant switches, largest ever built into saws give positive protection against accidental starting; smooth operating automatic ball-bearing biade-guard with rubber snubber; integr-tip control for depth and bevel cuts-no wrenches needed; complete ball-bearing construction using larger bearings than in any saws of this type convenient handles for better balance and easier handling.

AUSTRALIA FACES STEEL SHORTAGE

According to experts, Australia, because of the Korean war, is facing the worst steel shortage in facing the worst steel shortage in her history. The buying for stockpiling by America has been responsible for the cessation of quotations to Australia by Euro-pean mills, and supplies from Japan, which have been readily available for the past few months, are not both restricted in quan-tity and higher in price. Meanwhile Australia's present-day output of approximately 11 million tons a year of finished steel repre-sents only about half of the nation's requirements. It is evident, therefore, that unless drastic steps are taken immediately to increase coal supplies and so increase steel output, the manufacturing industries, the vast national projects in process of implementation, and the home-building schemes will be retarded

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INQUIRIES FOR PLANT MATERIAL AND AGENCIES

THE ALISTRALASIAN MANUFACTURER'S "INOUTRY DEPARTMENT

This Inquiry Service is for the use of readers of "The Australasian Manufacturer" who wish to trace suppliers of Plant, Equipment and Materials, and for particulars of agencies offered. Address your inquiry to the Inquiry Department, and give the fullest possible particulars to enable us to put you in touch will the best sources of supply. INCLUDE A STAMPED SELF-ADDRESSED ENVELOPE WITH YOUR INQUIRY. It is essential that telephone Inquiries be confirmed by letter. No charge is made for Inquiry Services, but normal advertising rates will be charged if agencies are sought by manufacturers' representatives or if goods are offered for sale. For the benefit of new subscribers, inquiries will be published in two or more consecutive issues.

SPECIAL NEW INQUIRIES.

WHEN REPLYING to an laquiry, please quote the Reference Number and send your reply to the Inquiry Department, "The Australasian Manufacturer," If Bond Street, Sydney. INCLUDE A PLAIN, STAMPED ENVELOPE so that we can forward your reply to the Inquirer.

MILD STEEL FLATS: Sydney firm wishes to purchase any of the following sizes, any quantity: 1 in. x ½ in., ½ in. x ½ in., ½ in. x 3/16 in., 1 in. x 3/16 in., 1 in. x 3/16 in. Write to Ref. 8287, c/c "The Australasian Manufacturer."

CYLINDER BORING BARS: Queensland subscriber is anxious to contact any firm who can supply a hand operated cylinder boring bar. If interested in this inquiry communicate with Ref. 2284, c/o "The Australasian Manufacturer."

WOOD FURNITURE, MOULD-ING, BEADING, ETC.: Newcastle firm of importers and hardware merchants desires to contact manufacturers who can supply for re-sale, various types of wood furniture, moulding, beading, etc. Write Ref. 8285, c/o "The Australasian Manufacturer."

AIR COMPRESSOR UNIT;—Comprising Southern Cross 4-Cylinder Vertical Engine, direct coupled to C.P. Vertical Compressor with Vertical Air Receiver. Makers Rated Capacity, 169-Cubic Feet Displacement. In first-class order, ready for immediate delivery, Meibourne. Write to Ref. 4577, c/o "The Australasian Manufacturer."

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A L U M I N I U M MONO-STEARATE: Firms manufacturing Aluminium Monostearate are asked to write to Ref. 8286, c/o "The Australasian Manufacturer."

AGENCIES WANTED: Manufacturers' Agent visiting engineering workshops and other industries in New South Wales wants other lines. Apply Ref. 8283, c/o "The Australasian Manufacturer."

HARD DRAWN WIRE AVAIL-ABLE: Sydney firm has for sale over 2000 lb. of 17 gauge wire (hard drawn). Firms interested in purchasing this material are asked to write to Ref. 8281, c/o "The Australasian Manufacturer."

MACHINE WANTED FOR WINDING SPIRALS OF ELECTRICAL ELEMENTS: N.Z. firm desires to contact any firm who can supply them with a machine for winding spirals as used for electrical elements. They use 26 to 31 gauge B. & S. nichrome and they are at present winding them on a 5/64 mandril. They want to mount a 51b. spool of wire for a continuous spiral. Write to Ref. 8282, c/o "The Australasian Manufacturer."

SHEET METAL POWER SQUEEZER WANTED: Sydney firm wishes to purchase a "John Heine" or similar type sheet metal power squeezer. Write Ref. 8280, c/o "The Australasian Manufacturer."

AGENCIES AVAILABLE: Agents with engineering knowledge wanted to sell equipment to engineering workshops and other industries in all Australian States and New Zealand. Write Ref. 8274, c/o "The Australasian Manufacturer."

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AGENTS REQUIRED — NEW SOUTH WALES, QUEENSLAND:
A newly established firm in Australia with offices in Melbourne, London, Copenhagen and Osio requires Agents to operate on their behalf. Commodities to be handled would include Ferrous and Non-Ferrous Metals, Mining and Tungsten Tools, Wall Board, Timber, Prefabricated Houses, The principal of the Australian firm will be in Sydney and Brishane shortly. Apply in writing, giving details of business, to Ref. 8276, c/o "The Australasian Manufacturer."

BLOW LAMPS AND SPRAY-ING EQUIPMENT: Dutch firm specialising in the manufacture of blow lamps and spraying equipment, wishes to engage in the production of such commodities in Australia, and is interested in partnership or other form of business association with a similar existing establishment in this country. Further information on application to Ref. 8279, c/o "The Australasian Manufacturer."

CHILLED IRON ROLLS FOR SALE—Sydney firm has for sale a quantity of high quality Chilled Iron Rolls of American manufacture, 15 in. diameter, 15 in. face. All ground finish. Illustrations and specifications supplied on application to Ref. 8210, c/o "The Australasian Manufacturer."

DROP HAMMER: A Sydney manufacturer is interested in the purchase of a small drop hammer with approximately 2 cwt. Tup. Total height not to exceed approximately 11 ft. Write to Ref. 8278, c/o "The Australasian Manufacturer."

MANUFACTURE OF TRAVEL GOODS AND TEXTILE SPIN-NING CANS: A Dutch firm manufacturing travel goods and suit-cases, also vulcanised fibre spin-ning cans for the textile industry, desires to contact an existing Australian manufacturer with a view to partnership or other business arrangement. Write Ref. 8275, c/o "The Australasian Manufacturer."

RUBBER TILES AND RUBBER FLOORING — DISTRIBUTORS WANTED: An old-established English Rubber Company desires to appoint distributors of their Rubber Flooring in Tiles and Rubber Flooring in New South Wales, Queensland, Victoria and South Australia. Write to Ref. 8277. (~6" "The Australasian Manufacturer."

BRIGHT MILD STEEL WANTED 3in. bright shaft wanted, to be used in lengths of 9ft. Please write or "phone.

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SAFE WORKING IN INDUSTRY.

The Standards Association of Australia announces the issue for public review and comment of a draft Standard Code for "Safe Working in Industry" (Doc. 159). This draft Standard Code is supplemented by two sets of proposed Standard Rules for "The Use of Colour for the Marking of Physical Risks and the Identification of Certain Equipment" (Doc. 157), and "The Design and Use of Industrial Accident Prevention Signs" (Doc. 158).

The draft Standard Code for "Safe Working in Industry" (Doc. 159) was prepared by a committee appointed by the Aasociation's Safety Standards Co-ordinating Committee, and is intended to provide a general outline of the factors to be considered in providing safe working conditions in industry. It is known that in a number of fields attention is being given to the setting up of safety programmes by management, and it is to assist such work that the draft Code has been prepared.

Among other things, the draft Code brings together into one place the various safety precautions recommended in such of the Association's publications as the SAA Boiler Code, Wiring Rules, Lift Code, Compressed Air Code, Code for Fuel Oil Installations, Explosives Code and the like. It has general sections dealing with definitions, general provisions, safety of personnel, work places and travelling ways, machinery, plant and equipment, harmful substances or processes, storage and handling of material, clothing and personal safety equipment, and records and statistics.

The draft Standard Rules for the "Use of Colour for Marking Physical Risks and the Identification of Certain Equipment" (Doc. 187), is one of a series being prepared by the Association at the request of the National Safety Council of Australia. It has been recognised that colour as a means of directing attention to certain equipment in cases of emergency or 16 physical risks, has in the past, been very valuable. Such use of colour has been applied

in many spheres and in the main, in the individual cases concerned, has given considerable satisfaction to those using it, but because no general standard existed the extent of the application varied widely. The draft Standard Rules now circulated were intended to correct this condition.

The committee concerned emphasises that the provisions of the Standard Rules are intended only to supplement and not in any way to replace the practice of providing a physical barrier to guard a machine or physical risk, and that the marking of a risk by standard colour warning should never be accepted as a substitute for the complete elimination of the risk whenever that is possible. As few colours as possible have been recommended, it being recognised that the presence of too many colours in a scheme serves rather to confuse than to simplify. The draft Rules have sections dealing with general application, use of red, use of yellow and use of green.

use of yellow, and use of green.

The draft Rules for "Design and of Industrial Accident vention Signs" (Doc. 188) similarly, is one of the series being prepared at the request of the request of Council of National Safety Council Australia, for the reason that suitable industrial accident prevention signs provide effective of drawing attention to danger-ous conditions where caution ought to be exercised, and marking the location of s ought to be exercised, and for marking the location of safety and fire fighting equipment. Again it is emphasised in the draft Rules that the provision of a warning sign is only one of the warning sign is only one of the precautions to deal with a hazardous condition, and is only part of the means to be used for elimination of risks by prevention. In particular, comment is desired by those having specific experience in the use of danger tags. It has been though by the compatible been thought by the committee been thought by the committee concerned that the use of such tags should rather be designed to it domestic conditions and ating systems, and that it might be unwise to endeavour to cover them in a standard series. It is hoped that comment from those hoped that comment from concerned will clarify this ques-tion during public review. The draft Rules have clauses dealing with purpose, application, classes of signs, sign colours and word-

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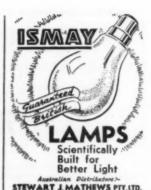
conies.

Copies of the three drafts can be obtained from the Standards Association of Australia, Headquarters, Science House, Gloucester and Essex Streets, Sydney, or from branch offices in all capital cities of the Commonwealth, and

Newcastle, N.S.W., to which addresses, also comments, on the drafts, should be sent before the 15th November, 1950.

IMPORT LICENCES.

It was announced recently by the Minister for Trade and Customs, Senator N. O'Sullivan, that Australian traders can now import without licence any commodity from the United Kingdom, with the exception of tinplate. It is also permissible to import from other sterling area countries all commodities except tea, rice, tinplate, petroleum products, hessian, jute bags and sacks, jute yarn, linseed, and linseed oil.



AMERICAN-AUSTRALIAN INDUSTRIAL CO-OPERATION.

217 William St., Melbourne, C.1 Telephones: MU 6483 .

Mr. Ian Potter, well-known Melbourne financial authority, is convinced, as a result of his investigations during his recent visit to the United States, that American industrialists are interested in extending their activities to Australia. "These organisations," he said, "fall into two groups — companies established here already, which have big plans for expansion, and other large companies which are anxious to get into manufacture in Australia. However, two factors worry the American industrialist when he turns his eyes to Australia. These are, first, the double tax anomaly. Australia would lose a certain amount of revenue if the Commonwealth were to agree not to tax American investments in Australia. But I believe this would be a very small, but a very effective, contribution to stimulating American interest in Australia. And second, convertibility of American capital invested in Australia. Britain has given a lead by guaranteeing the convertibility into dollars of such investments, and Australia must think seriously of following Britain's example."

AMERICAN BUSINESS AND DOLLAR LOAN.

Mr. H. L. Hoefman, chairman of Link-Belt Pty. Ltd., U.S.A., said on his recent arrival in Sydney from America that his fellow-industrialists will react very favourably to Australia's dollar loan. "American business realises," he said, "that we cannot have prosperity in the United States and depression in Australia. The Commonwealth is regarded as a large market. The only way to take advantage of the market is by investment, or by association between companies." Mr. Hoefman's organisation has chosen the latter form or participation, being associated with Mallesble Castings Ltd., Marrick-ville, New South Wales.



Monthly Plastics Review

A special section published monthly with the object of contributing to the progressive development of the Plastics Industry in Australia.

Advance in Orthopedics

New Bakelite resins make possible lightweight, form-fitting, more comfortable braces

PEOPLE who require corrective braces can look forward to new comfort with orthopedic braces and prosthetic appliances made of new plastic laminate. Bonded with specially developed Bakelite resins which harden overnight at room temperature, layers of glass fibre material are mouided into lighter weight, better fitting braces and components by a quick and easy process.

This new plastic laminate brace was developed jointly by a chemist on a Fellowship at Mellon Institute, Pittsburgh, U.S.A., and repre-

The braces pictured here contain a form-fitting cuff, the initial use of this new development. Foreground shows a new type glass fibre laminated cuff with the positive plaster ankle cast over which it was formed.



This form-fitting structure at left permits a considerable saving in labour over the conventional procedure for producing orthopedic appliances and in many cases a more perfect fit. Object at right is same brace before it has been trimmed and sanded.

sentatives of the Sarah Mellon Scaife Foundation's Multiple Fellowship on Orthopedic Appliances in Mellon Institute. The work of this fellowship is directed toward the improvement of braces by the development of new constructional materials, improved designs, and new fabrication techniques. When foundation authorities offered to build a suitable night brace for the chemist's daughter, they pointed out that it could be made more comfortable it a low pressure laminating resin of adequate rigidity were available to make a form fitting cuff for the ankle. To meet such needs, there was developed a liquid composition that cures in several hours at room temperature to form a hard rigid plastic.

After the development of a sultation resin, the work of applying it to orthopedic devices was undertaken by Dr. H. E. Weaver, of the Sarah Mellon Scaife Foundation's Orthopedic Appliances Fellowship. One of the developments of this Fellowship is the laminating system comprising glass fabric and the new low-pressure laminating resins known as Bakelite C-8 resins. This system is particularly satisfactory for the construction of rigid curved appliances and brace components.



In the preparation of these new type laminated braces, a release material is first rubbed into the wax surface of the positive plaster cast and the laminating resin material is apread over the form. Appliances are readily constructed to the exact contours of the desired portion of the patient's body by preparing laminates from glass fabric and the liquid resin over positive plaster casts of the affected parts. The laminates cure to rigid, form-fitting structures at room temperature.

In the construction of many devices, the use of this laminating system, says the "Bakelite Review" permits a considerable saving in labour over the conventional procedure in which aluminium or steel is drawn or bent to shape and riveted or brazed to produce the desired structure. In many cases a more perfect fit, essentially free from pressure points which frequently cause pressure sores, can be achieved by the use of the conventional techniques of construction.

The laminating resin, consisting of two components mixed together, is of the proper viscosity to saturate sheets of glass fibre cloth. These sheets are built up in layers to the desired thickness over a positive plaster cast of the affected parts. Removed from the plaster casts, the hardened plastic laminate is trimmed at the edges, filed, and sanded. An additional coat of the C-8 resin may be applied and allowed to set over-





After fabric has been placed in contact with the prepared plaster cast and amoothed into place, a thin coating of resin is sufficient to saturate fabric applied to exposed surface.



Then a dry piece of fabric is smoothed into place to provide intimate contact between two layers of fabric and to force any excess resin to the surface. Another coat of resin and another piece of dry fabric are added alternately for desired thickness. Finally, the top surface layer of fabric is coated, as shown here.



Laminate being removed from plaster cast. Such laminates cure to rigid form-fitting structures at room temperature.



Laminate being sanded after it has been trimmed of excess material.

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Ferguson's use one type of plant for grinding and sieving of wood-filled powders, and an altogether different type of plant for those with cotton fillers, such as A.645. Thus, in the latter, undue fluffing is obviated, scientific screening assured and all dust resulting from grinding carried away into cyclones and filters. The whole secret of "Nestorite" is the use of one exclusive type of plant for each particular powder. This gives a consistent powder. Consistent quality in powders gives consistent quality in mouldings.

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XYLONITE (Cellulose Nitrate)

In all colours and beautiful configurations. Sheets, rods or tubes. Waterproof, splinter-proof, resistant to dilute acids and other chemicals.

Typical Uses.—Combs, toothbrushes, optical frames, sunglasses, toilet sets, games, toys, motor car side screens, office equipment, foundain pens, table tennin balls, drawing instruments, shoe heel covering, toilet seat covering, tool handles.

BEXOID (Cellulose Acetate)

Resembling Xylonite, but non-inflammable. Sheets, rods and tubes. Extruded sections. Moulding powder (the standard all-round injection material).

Typical Uses.—Motor car parts, lamp-shades, instrument panels, dress ornaments, conduit, steering wheel covering, combs, toothbrush handles, telephone instruments, torch cases, electrical plugs, extruded sections, moulded toys, bnife scales.

LACTOID (Casein)

In all colours and delightful multi-shades. Sheets, rods, tubes and discs. Takes a brilliant polish. Easily manipulated and machined.

Typical Uses.—Buttons, buckles, counters, combs, dress ornaments, furniture handles, knitting pins, beads, knobs, low tension electrical accessories, fountain pens, propelling pencils, umbrella handles.

BX P.V.C.

In all colours. Flexible sheets (plain or embossed), tubes or sections. Also extrusion compound. Remarkably tough. Resistant to chemicals. Low water absorption.

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BARRINGTON HYDE PTY., LTD. MacDonell House, 321 Pitt Street, Sydney.

New Zealand Agents
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P.O. Box 1002. Auckland.

BX PLASTICS LTD., CHINGFORD, LONDON, E.4 ENGLAND

(Continued from page 40.)

night for extra smoothness. The brace is ready for use after washing in water, though it may be padded and lined if the patient so wishes.

The new type laminates can be used alone as, for example, a back brace or they can be used as component parts of an aluminium or steel brace. In such ap-



A comparison between the old and new: At right, a new type of orthopedic appliance consisting of glass fibre strips laminated with Bakelite C-8 resin.

plications, they provide control and rigidity, but generally they do not replace the weight-bearing members of appliances. The plastic laminate is also believed to have possibilities for the construction of artificial limbs.

SILICONE GLASS MOULDING.

Because of their great strength and heat resistance, silicone moulding compounds have intrigued the plastics industry ever since the war. There has now been developed a new silicone glass moulding compound which will withstand continuous operation at 392 deg. F. The new material has the usual high-impact



Above: A completely different type of clotheapin, called the Jiffy-Grip, is moulded of Lumarith cellulose acetate. Finger pressure on the "trigger" opens the pin so that it slips on easily. The resilience of the material causes it to snap shut.

and heat resistance expected of silicone and glass, has good flow in the mould, and excellent arc resistance. The compound is especially suited for circuit breakers and switchgears.

Another development is a new polyester-type plasticizer. The new material is reported to have very good heat, light, and weather resistance, improved oil and water resistance, as well as improved non-migrating characteristics. It is suitable for plas-

ticizing polyvinyl chloride, ethyl and nitrocellulose lacquers, and chlorinated, natural, and synthetic rubbers.

Also coming from the same laboratories is a thickness gauge which, by using rays from a radioactive material, can determine the thickness of moving sheets of materials, such as metal, rubber, plastics, or cloth. The radio-active material showers beta rays on the sheets being measured, and an electronic device measures the quantity of rays passing through. The gauge makes the measurements continuously and automatically, without actually touching the materials, providing supervisors with a continuous check on the thickness of the sheets as they are produced.

PREFORM HEATER DIELECTRIC MATERIALS.

Rapid, uniform, economical, and thorough heating of plastics, rubbers, and other dielectric ma-



Practice golf ball made of Bakelite polyethylene clicks when hit, has same line of flight as normal golf ball, but travels only one tenth the normal distance. The ball is noulded in two halves which are bonded to each other on a special machine designed by the manufacturer.

terials are the major claims for a new HFH 1.5 AH dielectric preform heater recently announced. A portable, automatic bench machine, the new unit is adaptable to preheating, drying, sealing, and processing. For preforming, one or several large or an loading tray that slides into the heater. Heating is automatically sturted, and continues for the pre-set time cycle. The heater will raise the temperature of 1½ lb. of average material 170 deg, in one minute. The loading tray is 6 by 8 in. and will accommodate material up to 3 in. high. Pills always come to the correct heating position because of the tray construction. High-frequency energy is provided at 40 mc. per second, as a result of which, a wide range of materials can be heated. High-frequency also permits efficient heating at lower voltages. The heater can handle alternate loads of different sizes to serve two presses.

WEATHER INSTRU-MENTS IN PLASTIC.

By setting weather instruments in panels and solid blocks of acrylic, three desirable advantages in encasing such precision devices have been gained. Because of their delicate nature, such devices must be protected by a substantial material; their dials must be clearly visible; and the instruments should be decorative in appearance.

Sturdy, clear, transparent acrylic is being used for enclosing a pair of new weather instruments recently introduced to the market. These two new models consist of a combination barometer (a grouping of three instruments—barometer, temperature indicator, and relative humidity indicator, and a single barometer.

The case for the combination model consists of two crystalclear acrylic panels mounted in a



This barometer rests in a hole drilled through a solid block of acrylic.

gold-finished metal frame. The panels measure 10 by 5 p 2 in.; the goldtone dials on the front panel have white numerals and graduations. These numerals and graduations are applied to the inner surface by the silk screen process, using a special ink. The open-face barometer is adjustable for elevations from 0 to 3,500 feet.

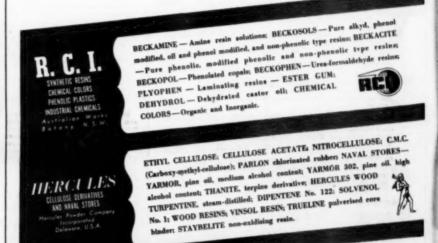
A sparkling-clear block, measuring 5½ by 8½ by 12 in., is used for mounting the barometer. This unit has a gold-finished metal base with bezel to match. It features a signal device which automatically indicates whether the barometer is rising or falling. Both models are particularly suitable as gift presentations and are striking decorative additions to home or office.

WORLD TIME.

A globe clock has been designed to indicate at a glance the time in all parts of the world. The mechanism is enclosed in an acrylic case which supports a coloured globe of the world, and a shutter is operated inside to cover the part of the world that is in darkness. Times can be read from a metal strip round the equatorial line of the globe.



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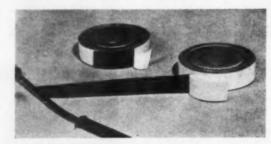
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TAPED FOR PRO-TECTION.

A new type of electrical splicing tape based on Bakelite polyethylene possesses a unique characteristic of fusing, within a few minutes after application, into a homogeneous and continuous mass, thus making it almost impossible to unwrap or delaminate the splicing. This self-sealing tape,

The tape is supplied in 2 inch and other standard widths in both clear and black colour, 020- and 030-inch in thickness. Individually boxed, it is supplied in rolls 30 feet in length. In addition to its electrical applications, it is expected to find wide usage in the household for wrapping articles including tool handles, tensis racquets, ping-pong paddles, and brief case handles.



Application of Bi-Seal tape to insulated wire. The tape is stretched and applied while maintaining normal taping tension.

possesses excellent electrical and mechanical properties, combined with resistance to chemicals and molsture, can withatand prolonged ageing without delamination, and may be used to splice electrical insulation of polyethylene and Vinylite plastic as well as those based on natural and synthetic rubbers. Because of its electrical and mechanical properties, the tape can be used to splice wires without the need of additional sheathing. In use, this specially formulated polyethylene tape known as Bi-Seal, is removed from the separator and stretched to two or three times its normal length and applied to the wire or splice maintaining normal taping tension. After an application, the tape attempts to recover from the stretching which has been imposed upon it. Sufficient pressure is developed to activate the self-sealing qualities of the polyethylene reain compound and the plies of the splice fuse to a homogeneous mass within a few

INDIAN PLASTICS.

The per capita consumption of plastics in India is as yet less than .005 lb. compared with about 8 lb. in the U.S.A. At the present moment in India, there are some 60 firms engaged in the manufacture of plastics goods, having a rated capacity of about 6,000 tons under the four main branches of compression moulding, injection moulding, extrusion and fabrication. The Lapacity of the factories when the Tariff Board made its enquiries was in the neighbourhood of 4,000 tons, and the increase of 50 per cent. was effected in the course of about a year thereafter.

Of the present rated capacity, 50 per cent. approximately is injection moulding, the raw material for which is entirely imported from dollar countries. India has also to depend almost entirely on imports of raw materials for its other branches also, except that phenoformaldehyde moulding powder is at present produced in India. The Indian Government has been continuous control of the present produced in India. The Indian Government has been con-

Plastics?

In these days of increasing production costs, wise men ask themselves, "Can I make use of plastics in my product?" In many cases the answer is "Yes," resulting in lower production costs, and often a more pleasing appearance of your product.

For that plastic component of your new project, consult us for dependable dies and mouldings.

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SPECIALISTS IN INDUSTRIAL AND ELECTRICAL PLASTIC MOULDINGS

aidering (according to Shri Prabhu Dayal Himatsingka) certain proposals in collaboration with American manufacturers, to set up a raw material manufacturing industry in India.

SENSITIVE HUMIDITY CONTROLLER.

A half tablespoon of water registers its vaporisation on this electronic device, which controls was discovered and developed in the I.C.I. laboratories has many remarkable properties which make it invaluable in various branches of industry. It is an outstanding dielectric, is mechanically tough over a wide temperature range and is highly resistant to most chemicals, water and water vapour.

"Alkathene" is available in many forms and has a wide range of uses. It is readily extruded into tube, the outside diameter and



Electronic humidity controller for textile mills.

relative humidity to within one half of 1 per cent. of desired setting. It was designed for industries where processing methods demand precise humidity control. Tests in textile mills resulted in reduced thread breakage. It consists of a plastic base on which gold leaf electrodes are imprinted. Moisture affects current between electrodes. This is amplified through electronic tubes to humidity controller and recorder.

A GAUGING SYSTEM FOR "ALKATHENE" FILM.

As is well known, "Alkathene" the I.C.I. brand of polythene which

bore of which depend on the dimensions of the dise used. "Alkathene" tube of dimensions suitable for conveying liquids is extensively used in the brewing and chemical industries and in cold-water plumbing installations—where the flexibility, strength and resistance to low temperatures of "Alkathene" enable it to withstand repeated severe frosts without bursting.

The material is also produced as a film and as a tubular film for packaging. These forms of "Alkathene" are transparent and are easily made up into bags, containers and drum liners. Both film and tubular film are available in many widths and thicknesses. Because it is extremely strong.

NOW... ONE NAME ONLY FOR ALL MONSANTO POLYSTYRENE:



In order to simplify the identification of Monsanto plastic moulding powders, all Monsanto polystyrenes are now known as Lustrex. This one trade-name covers all Monsanto polystyrene formulations including the one previously known as Lustron.

However, the several Monsanto special formula modifications to suit particular applications will be designated with suitable suffixes as shown in the table at right. This will make for convenience in ordering the correct grade of Monsanto Lustrex polystyrene for your needs LUSTREX L Regular polystyrene, for merly Lustron.

LUSTREX LX Heat-resistant polystyrene, formerly Lustres.

Special formulations for specific uses

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General purpose polystyrene

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Transparent colours and crystal with superior clarity.

LUSTREX L.PIX

Improved mouldability over L-PI; available in crystal only.

LUSTREX L-MA Improved mouldability in transparant colours

LUSTREX L-PIB

Translucent and opaque colours with exceptionally good mouldability.

All the excellent pros

All the excellent properties of L-PiL plus highest heas-resistance of any commercially available polystyrene

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even at very low temperatures. "Alkathene" film is a valuable packaging material for a wide range of products varying from engineers' tools and pharmaceutical and chemical products to foodstuffs

To facilitate ordering and en quiries, the manufacturers, Imperial Chemical Industries Limited, have recently introduced a system gauge numbers. These are related to the thickness of the film in thousandths of an inch as shown in the table below. The last column shows the area in square inches per lb. of "Alkathene" for

each this	kness.	
Gauge		Yield in
No.	Thickness	sq. in. per lb.
150	0.0015	20,000
200	0.002	15,000
300	0.003	10,000
400	0.004	7,000
500	0.005	6,000
700	0.007	4,290
1,000	0.01	3,000

"Alakathene" film covers "Alaxathene nim covers a considerably greater area per pound weight for any given thickness than traditional packaging materials. Articles packed in "Alkathene" are afforded an outstanding high degree of protection water and water from chemicals, water and water vapour. Attractive packs which stimulate sales can be designed and because of the transparency of "Alkathene" their contents are readily seen This transparency conveys an added advantage in marketing some products (e.g. engineers twist drills) because size markings, trade marks, etc., engraved or printed on the product are immediately visible through the wrapping. Labels are, thereunnecessary and there is no need to open packages to ascertain details of their contents. "Alka-thene" remains flexible, transparent and protective down to temperatures as low as 60 deg. below zero Centigrade. It is, therefore, particularly suitable for packaging quick-frozen foodstuffs.

HIGH-SPEED COMPRES-SION PRESS.

Development of a high-speed, automatic compression moulding press which speeds production of thermosetting plastic pieces, has been announced. The new equip-

ment features fast die-closing ment features tast uncertainty action with exacting pressure control-factors which are of vital importance when moulding quickcuring alkyd resin powder

The press provides for auto-matic feeding of granular powder either single-OF



Fast die-closing action with exact-ing pressure control are features of this new press.

mould cavities; automatic dwell or curing time; electric heating of mould halves; and automatic injection of finished parts. To permit rapid closing, the unit has a downward ram speed of 500 in. per minute. It also has preset pressure control that assures precise duplication of pressure with

each operating cycle.

Other highlights are electric control of raming cycle; connections and pilot lights for thermostatically controlled electric mould heating elements; completely selfcontained; and manual control for moulding operations which re-quire positioning of inserts.

THERMOSETTING PLASTIC HAS RANGE OF FLEXIBILITIES.

Development of a tough, thermosetting plastic which promises to become one of the basic raw materiais of the rubber industry has been announced. The new plastic, IF—your manufacturing schedule calls for a plastic moulding to close tolerances, in any colour, and, above all, in strictest confidence, consult without delay

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'Phones: MU 3051-2-3

CUSTOM MOULDERS IN ALL THERMOPLASTICS

it is claimed, bridges the gap which has existed between soft rubber and hard rubber. It fuifils a need for high strength material which is resistant to abrasion and chemicals and at the same time can be produced in varying degrees of flexibility ranging between elastic soft rubber on one hand and brittle hard rubber on the other.

One of its outstanding uses in to replace metals in the manufacture of high strength, low-cost gears. Gears made of the new plastic have been operating for more than a year in applications where conventional metal gears have failed within a few weeks. These gears were moulded in one piece to cloue tolerances which climinated the need for elaborate finishing.

The new plastic will be marketed under the trade name "Enrup". It has an impact strength which is superior to most plastic materials and can be moulded conomically by either compression or transfer methods. Sheets, rods, tubes, gear blanks and moulded parts are available. ting, folding, taping, Well-suited where small lots of various size boxes are used.

In another box making machine recently developed plantic sheet cylinders are accurately sized on this device to insure proper fit of covers, bottoms. Mandrels may be adjusted in 2½ in. to 8½ in. dismeter range, will accommodate cylinders up to 10 in. long. It seals lap joints with i-in, electrically heated sealing bar. The foot treadle operates sizing mandrel and sealing bar. Expansion of ½ in. in mandrel automatically sized cylinder.

INJECTION MOULDING HEATER.

Thermoplastic injection moulding machines can be adapted for use in moulding thermo-setting products by the installation of a new injection moulding heater. The new unit is particularly suitable for use with the Reed-Prentice 10D-8 thermoset injection moulding machine. The new equipment



Machine builds plastic boxes.

PAIR OF VERSATILE BOXMAKERS.

A new box machine needs only a few minutes set-up time to change dimensions for different size boxes—up to 7,000 types. It delivers 10 finished box blanks a minute, and will take any grade of corrugated board. Automatic operations include scoring, slot-

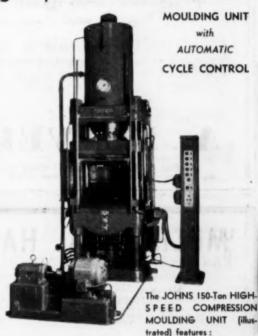
features elimination of pre-heating of material prior to placing it in the hopper, since the process includes controlled pre-heating in the machine's normal cycle. Moulds also have controlled heat for final polymerising or curing of the shot.

Other advantages claimed for the new equipment include close

(Turn to page 40.)

JOHNS MOULDING PRESSES

The JOHNS
High-speed COMPRESSION



- . HIGH-SPEED OPERATION
- COMPLETELY AUTOMATIC CYCLE CONTROL
- COMPLETE PROTECTION OF MOULDS
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AGENTS IN ALL STATES



(Continued from page 47.) tolerances (dimensional accuracy can be maintained to within 0.001-in. limits); high density and strong pieces, resulting from high pressures up to 47.000 p.s.l.; light weight and high production at low unit cost.

NEW RESIN-BINDERS FOR FOUNDRY CORES.

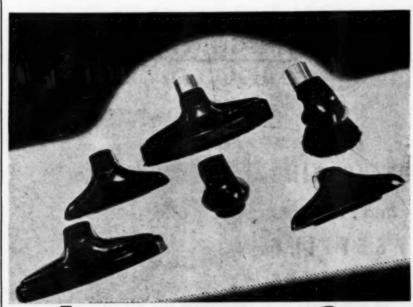
RESIN-BINDERS FOR PRODUCING CORES AND MOULDS FROM SAND.

Improved quality in the casting ... improved working conditions in the foundry ... reduced cost—these are the benefits claimed to result from a new process for casting metals known as the Croning process. This process employe a special Bakelite resinbinder for producing cores and moulds from sand. Although resins have been used for many



With these new thin-shell moulds, quality precision is obtained, with tolerances of .002 to .003 of an inch per inch possible.

years in sand core binding, it is claimed that the new method is a radical departure in that it does not require long baking and curing and uses relatively small volumes of sand. The outstanding advantage of the castings produced with the new type process is the quality precision that is obtained. The casting comes from the mould with clean, sharp edges, true dimensions, and unchilled surfaces that require little or no finishing such as sand blasting or wheelabrating. It is reported that the quality and precision of the cast-ing are increased to the point where tolerances of .002 to .003 of an inch per inch can be com-mon practice. Where extremely close tolerances are required, usually only a finish cut is necessary rather than a rough cut fol-lowed by a finish cut. In some instances where holes are required in the casting, they can be formed in the mould, and subsequently drilling is eliminated. Additional ariting is eliminated. Additional advantages of the Croning process include the greatly increased productivity of the floor space. A saving of up to 90 per cent of sand required is realised because the new mould consists of only a thin shell firmly bonded with Bakelite resins, as contrasted with the conventional heavy and cum-



INJECTION MOULDED IN CELLULOSE ACETATE

What do you Require in CELLULOSE ACETATE

Should your product combine mechanical strength and toughness with high surface lustre and "eye appeal," the use of cellulose acetate may provide a decisive and economical solution.

A versatile material, it has exceptional colouring properties, high dielectric strength, low moisture absorption and good dimensional stability; it lends itself to fabrication by injection or by compression moulding and such machining operations as milling, turning, drilling, etc.

Whatever your requirements in plastics, our engineering approach to materials selection, die design and fabricating methods ensures quality output at economical cost.

Production Note-

Product Illustrated: Vacuum cleaner nossies. Client: Tecnico Ltd. Material: Cellulose acetate—high lustre, walnut finish.



Walter Barr Pty. Ltd.

Division of International Products Ltd.

GILLESPIE AVENUE, ALEXANDRIA, N.S.W. MU2467
PRODUCERS OF COMPRESSION, TRANSFER & INJECTION MOULDINGS IN ALL THERMOSETTING & THERMOPLASTIC MATERIALS



HOT HEADING and other UPSETTING OPERATIONS

Birles Induction Bolf-stock
Heater—Production Type



A BIRLEC AUTOMATIC HEATING MACHINE offering these worthwhile advantages

- Automatic Operation magazine feeding of material.
- High Output—
 up to 1,200 pieces per hour.
- Economical Operation—
 with power at .9d. per unit, the heating cost
 for ½in. stock, heated length 2½in., is 5/4½ per
 1,000 pieces.
- Compact—
 occupies minimum floor space.
- No Scaling longer die life, better product.
- Precise Localised Heating fully selective and confined exclusively to part requiring treatment.

BIRLEC LTD.

51 PARRAMATTA ROAD, GLEBE, N.S.W. MELBOURNE OFFICE - 415 LONSDALE ST.



Agents: ADELAIDE-Unbehaum & Johnstone Ltd.; BRISBANE-Alfred Snashall, Anthon Ptv. Ltd.; PERTH-Eagle & Globe Steel Co. Ltd. WELLINGTON, N.Z.-H. P. Wrigley, G.P.O. Box 1136.

THERE'S A BIRLEC FURNACE FOR every HEAT TREATMENT AND MELTING PROCESS

bersome sand moulds. The reduction in the amount of sand is accompanied by a proportionate reduction in the amount of sand handling and preparation. It is also claimed that the cleanliness of the new process will tend to promote easier, cleaner, and more healthful conditions for the foundry workers.

SCREW ANCHORS.

Designed to hold screws securely in almost any type wall material, acetate expansion screw anchors are now being produced. The plastic device is injection moulded of metallic material. Made in a range of sizes, the anchors are



Flexible injection-moulded expansion anchors hold screws in place.

flexible, permitting expansion, and strong so that the screw is held in place firmly. When used, holes are first drilled into the wall, after which the expansion anchor is driven in, and the screw is then inserted in the hole where it is solidly anchored.

INK FOR ACETATE.

Development of a new letterpress acetate ink which permits plate polishing of printed acetate sheets has been announced.

Producers say that this ink will not lift during polishing, thus eliminating the necessity of laminating a thin film over the printed sheet. Price markers, calendar cards, pocket rules, and packaging

are some of the products affected.
The new ink was developed capecially for the new Celanese acetate sheeting, and the maker announces that special printing types of this white non-fiammable acetate are carried in stock. The ink and acetate sheet are suitable for use on job, flathed, or cylinder letterpresses, and drying can be accomplished with any conventional method. The link is priced in the same range as other inks used for vinyl, celluloid, and other plastics materials.

PLASTIC PATTERNS FOR INVESTMENT CASTING.

During the course of a paper read recently before the American Solicety of Tool Engineers, reference was made to the use of polystyrene plastic as an alternative to wax for the patterns for investment casting. The plastic patterns are produced in much the same manner as those of wax, by injection into a suitable mould, but the latter must be made from a material of higher melting point than suffices for wax patterns. The use of moulds cast



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G. N. RAYMOND LIMITED

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in low melting point alloy from master patterns is therefore impracticable, and the moulds must machined by conventional hods. It is stated that for methods. It is stated that for comparatively simple shapes the cost of a machined mould for cost of a machined mould for plastic patterns is approximately the same as that of the master pattern and soft metal dies required for wax patterns. With more complicated forms, the moulds for plastic patterns are generally proportionately more expensive. Their life is, however, greater than that of cast moulds for wax, and they produce pat-terns of greater uniformity and accuracy.

Plastic injection costs are said to be less than those for wax, and when production requirements are high and design has been sta-bilized, the use of plastic pat-terns is recommended, particu-larly as they permit greater uni-formity of the finished castings.

ACID-RESISTING FLOOR LINING.

One of the problems in the construction of buildings to house chemical plants is to protect the foundations and floor joists from corrosion by acids and alkalis, etc.

Unfortunately no known material is capable of forming a crack-free layer with the requisite degree of chemical and abrasion resistance. and dimensional stability. The best substitute is the use of acid-resisting bricks or tiles, set in cement which has the necessary physical properties and resistance to chemical attack. With such floors, however, liquors are likely to penetrate through the brick joints and the cracks in the cement. and a continuous lining of acidresisting material beneath the cement is therefore necessary.

Alkathene (polythene) foil is an

ideal underlay for acid-resisting brickwork as it is tough and has a high resistance to acids, alkalis and most organic and in-organic chemicals. It can be jointed by heat without the use of adhesives, so that a continuous sheet of any size can be formed. The foll is pliable and it can be tailored to shape. It has already been widely used in I.C.I. factories for the construction of floors in chlorine-cell rooms and nitric acid plants, and to line ducts for carrying away acid spillage.

The foil, which is .010 in. thick, is marketed by Imperial Chemical Industries, Ltd.

CHANGE OF ADDRESS.

Hurst Holdings Pty, Ltd., manufacturers' agents, formerly of 74 Pitt Street, Sydney, has removed to 3 Castlereagh Street, Sydney.

CHEMICAL SERVICE TO INDUSTRY

CHEMICALS SUPPLIED BY ICIANZ ARE BASIC RAW MATERIALS FOR INDUSTRY.

THE RESOURCES OF ICI ARE CONTINUALLY DIRECTED TOWARDS NEW CHEMICALS. WIDE KNOWLEDGE AND EXPERIENCE ARE APPLIED TO RESEARCH AND DEVELOPMENT.

DO ANY OF THESE PRODUCTS INTEREST YOU?

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"CERECLOR":

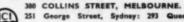
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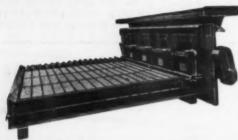
SOME NEW COUNTRY INDUSTRIES.

New milk processing concerns, manufacturers of infant and invalid foods, etc., are to be estab-lished as below according to the latest advices:-

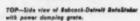
Tongala Milk Company (Bermese Alps Coy. of Switzerland), for Victoria; Wilts United Dairies Ltd. (a large English organisa-Ltd. (a intrge English organisa-tion), for Victoria; Cow and Gate Ltd. (another large British Com-pany), for N.S.W.; Carnation Company of America, for Vic-toria; Bordens Inc. of America, for Victoria. Victoria. for

We understand that the Ton-gala Milk Company, the Wilts United Dairies Ltd. and the Cow and Gate Ltd., might be in production towards the end of this year, but the two American con-cerns may not be in operation un-til the latter half of 1961.

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BOTTOM-Sectional view of Babcock-Detroit Rotolitaker.



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INSECT REPELLENTS.

EFFECT ON PACKAGING.

Defence Research Laboratories have recently published Technical Note 11: "The Effects of Insect Repellents and Insecticides on Bitumen/Paper Laminates used for Wrappers and Case Liners", by A. L. Temby and E. C. Kuster. Copies of the circular are available to interested persons free on application to Chief Superintendent, Defence Research Laboratories, Private Bag No. 4, Post Office, Ascot Vale, Victoria.

Following reports of textile goods wrapped in bitumen/paper laminates being stained when naphthalene and p-dichlorbensene were used as moth repellents in the packages the effects of these materials and D.D.T. on bitumen/paper laminates under various (simulated) climatic conditions were investigated. A DDT/talc mixture is recommended for moth proofing textile goods during storage.

FLAME HARDENING.

The availability of a 12-page reprint entitled "Oxyacetylene Flame Hardening in Commercial Heat Treatment" has been announced by Airco Company International.

This article, which originally appeared in "The Welding Journal", is illustrated with 22 photographs, covers the range of materials which may be oxyacetylene fixme hardened, outlines the various fiame hardening methods, and offers typical applications of the process. Cost and hardness tables are also given.

Copies of this reprint may be obtained by writing to Airco Company International, 33 West 42nd Street, New York 18, N.Y., U.S.A. and asking for Form ADR-63.

AUSTRALIAN MOTOR CYCLE.

In a short ceremony recently the S.A. Minister of Works (Mr. McIntosh) handed over in Adelaide the first Australian Tilbrook motor cycle to the buyer, Mr. Alsa Wallis, of Crafers.

The motor cycle, designed and built by Mr. R. P. Tilbrook, at Bridge Street, Kensington, Adelaide, is the result of five years development and research.

Three models will be produced at the Kensington factory—125 c.c. and 200 c.c. tourers and a 125 c.c. for road racing. All three will be exhibited at the Royal Show.

Show.

Although one machine has been built and assembled at Kensington, Mr. Tilbrook said that for the present he would import English ongless.

Surface Dyeing of Plastics

Methods of Colouring Products Rapidly to any Desired Shade

From time immemorial a demand has been present for freedom of individual expression in design and finish in the products of the craftsman. In the present mechanized age this may tend to be subordinated to conditions facilitating mass-production, and the mass-production of plastics articles usually limits the manufacture to one of a given range of colours during each production run.

IN the fancy goods and button trades, ever-changing demands of fashion have to be met, and mass-coloured plastics are often at a disadvantage. The situation may arise where it would be necessary for the manufacturer to carry stocks of every size and shape in all the currently popular colours, and many of these may become redundant at the end of the season. It is a great advantage, therefore, to be able to stock only unarticles, v coloured articles, which can rapidly be surface dyed to meet current orders. For specialized applications, too, where only small quantities of a plastics material, coloured to conform to some given requirement, have to be made, for example, for optical or light filters, it may be more econmical to use a surface dyeing technique. No doubt, as at present, by far the greater proportion of plan-tics will continue to be masstics will continue to be mass-coloured, whereby the colouring matter is incorporated throughout material during manufacture While with care and some ingenuity ethods of surface dyeing plastics can be devised, to give the portion of the industry concerned with fabricating raw materials into everyday goods means of colouring to any desired shade, the technical limitations of surface dyeing must he given full consideration

PRINCIPLE OF SURFACE DYEING

The aim of any surface dyeing technique is to evolve a process

whereby the dyestuff is transferred into the plastics to a maximum without any deterioration in the surface of the material, without any swelling or shrinkage in its bulk, to give even colouration with maximum fastness to light, dry rubbing, washing, laundering, and all other conditions of use involving particular colour-fastness properties. Further, the process must be as simple as possible, free from all industrial hazards. These requirements are very far-reaching and cannot all be attained in practice; the importance of each has to be considered in respect to the job in hand.

In dyeing thermoplastic mouidings or shaped articles, the temperature of the dyeing operation must be well below the softening point of the material, otherwise shrinkage or distortion of the article may occur. This is necessary since severe strain may be left in thermoplastic mouldings or in materials shaped at too low temperature, and these are released at elevated temperatures, giving rise to warping or shrinkage. Certain types of thermoplastic calendered film are notable examples. Further, the surface gloss and optical characteristics of the material should be reained. Undue softening of the surface following solvent attack may give rise to a distorted surface and subsequent cracking or crasing may occur. Moreover, the use of solvents for obtaining surface col-

ouring on a commercial scale frequently involves risk of fire and toxicity. It is felt, therefore, that from an economic and safety point of view, as well as from the technical standpoint, an aqueous dyeing technique should be preferred to solvent staining even though the former may require elevated temperatures and more cars in controlling the process. In the U.S.A. a range of proppietary dyes is available of the solvent staining type, results from which, says an article in "British Plastics", give a coloured material with the dyestuff permanently trapped beneath the surface. However, it may be inferred that a certain amount of solvent is also retained beneath a dryer surface skir, and experience has shown that in certain cases, this may cause crasing or surface distortion several months after dyeine.

In a consideration of aqueous dyeing techniques, as may be expected, analogy and experience may be drawn from the dyeing of textile materials. Acid dyestuffs, which have been developed for dyeing wool have an affinity for the basic groups in proteins and show similar affinity for casein and nylon plastics. The dyeing of cellulose acetate rayons may be considered analgous to cases where a plastics has no direct chemical affinity for a dyestuff. Conditions must then be arranged for preference.

ential transfer of the dyestuff from an aqueous phase to the organic phase of the plastics material.

A number of methods of surfacedyeing various types of plastics have been developed along the above lines, the most recent of which are outlined below.

The assessment of the light fastness of a coloured plastics is perhaps one of the most important, and to obtain reproducible conditions of test, some acceptable standards must be employed. Dyestuffs manufacturers and consumers have been encouraged to accept the light standards initiated by the Light Fastness Committee of the Society of Dyers and Colourists for this purpose, and in 1942 these became "B.S. 1006: 1942, Part 11: New Reference Standard". These have been employed in all the colour tests on plastics quoted in the present article, whereby the resistance of a coloured plastics to fading is quoted on a 1 (very poor) to 8 (maximum) scale. It is not practicable to interpret fastness to light in terms of period of exposure. since this varies so much climatic conditions or intensity of illumination. However, it can be said that most plastics can be dyed to shades which exhibit as good fastness to light as moderately fast textiles which can be recommended

(Turn to page 85.)

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(Continued from page 53.) for normal interior uses. Deeper shades exhibit better light fastness than pastel colours, but in no respect can surface-dyed plastics be said in compare favourably for outdoor exposure against more conventional pigmented enamel coatings.

In the majority of surface-dyed plastics the colour penetration is confined to the surface layer which wear or rubbing will remove. This is much more noticeable where material, the latter normally requiring slightly higher dyebath temperatures. This factor should be taken into account in fabricating articles to be dyed subsequently, since variations in shade and colour strength may result on the component materials after dyeins.

Opal Perspex may be dyed similarly, but, as mentioned above, the effect is readily marred by abrasion, and the light fastness obtained is of a lower order. The type of results obtained it given in Table 1.

Light Fastness

Table 1.—Fastness Results From Acrylic Sheet

Dyestuff.

Colour Light stability to

Dyestuff.

Colour Light Fastness tability to on Clear shaping temperatures.

t Yellow A 300 Pdr. Fine Good 7

Colour Light Fastness tability to on Clear shaping temperatures.

Good 7

Good 6

Dispersol Fast Yellow A 300 Pdr. Fine Dispersol Fast Orange G 300 Pdr. Fine Dispersol Fast Crimson B 150 Pdr. Duranol Brilliant Blue BN 300 Pdr. Fine

white opaque plastics are dyed to heavy shades, since any abrasion of the surface then produces a white streak or patch on the darker colour.

Other fastness requirements are colour stability to heat treatments necessary for shaping or fabricating surface-dyed thermoplastic sheet, colour fastness to washing or hot pressing and dry cleaning of surface-dyed plastics used in the button trade, stability of colour of dyed nylon to paint solvents when used for brush tuffings, etc.

ACRYLIC SHEET

The patented process for dyeing acrylic sheet uses dyestuffs of the dispersed acetate rayon type, Calsolene Oil HS and benryl alcohol parted together in the ratio of 0.5:3:2 respectively, and added to 100 parts of water. The temperature is adjusted to approximately 70°C. and the previously cleaned sheet immersed for a given length of time depending on the depth of shade required. Fifteen minutes gives moderately full depth of colour. When the required depth of shade is obtained the acrylic sheet is rinsed in cold water and dried with a zoft cloth.

Plasticized Perspex dyes rathermore readily than unplasticized

CELLULOSE ACETATE

Redder

Transparent cellulose acetate sheet can be dyed to pale shades by immersion for approximately 15 mins. at 45-50°C. in an aqueous dyebath containing 0.5 per cent. of dyestuff of the dispersed acetate rayon type pasted with twice its weight of non-ionic dispersing agent. method is particularly suitable for optical filters or other applications where no distortion of the surface of the material can be tolerated. Deeper shades can be achieved, using the benzyl alcohol process al-ready described, and is indeed necessary for dyeing opaque white sheet or injection-moulded buttons or other articles.

Variations in plasticiser content of the celluloss acctate appears to have a marked influence on dyeing properties. In order to obtain adequate depth of shade on a hardgrade material, it may be necessary to dye at a temperature which may cause warping or shrinkage of a moulding made from a softergrade product. In the latter case, of course, it is necessary to use a lower temperature, perhaps increasing the dyeing time, to get a similar depth of shade. Typical examples of fastness results are given in Table 2.

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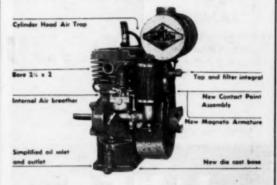
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Table 2.—Fastness Results For Cellulose Acetate.

Light Fastness on Trans-parent Sheet. Colour

Dispersol Fast Yellow A 300 Pdr. Fine Dispersol Fast Orange G 300 Pdr. Fine Dispersol Fast Crimson B 150 Pdr. Duranol Brilliant Biue BN 300 Pdr. Fine 6 8

4-5 4-5

CELLULOSE NITRATE

Cellulose nitrate sheet can be tinted by immersion in an aqueous dyebath containing approximately 0.5 per cent. of a solubilized acetate rayon dyestuff (e.g., Solocet) for approximately 15 mins. at 60-70°C., or alternatively deeper shades can be produced by the benzyl alcohol process. However, as the data, below illustrates, surface-dyed nitro-cellulose plastics have much inferior light fastness to that of surface-dyed cellulose acetate, even when the same dyestuffs are em-ployed to produce comparable depths of shade on the two materials

VINYLS

A number of vinyl polymers can be dyed by the benzyl alcohol process, and certain of the more highly plasticized types can be dyed from an aqueous dyebath prepared with dispersed acecate rayon dyestuffs. However, heavier shades, and indeed pale ones with certain dyestuffs, show a marked tendency for colour to bloom out on the surface, and looseness to dry rubbing occurs after storage. This defect is more marked with the more highly plasticized types of materials

Although a number of patents exist on the surface dyeing of polyvinyl resins, some of which are quoted, there appears as yet no

satisfactory method by which a range of shades can be produced on commercial polyvinyl plastics which have adequate fastness to dry rubbing. However, in cases where this migration of colour is not of importance, dyeing can be carried out satisfactorily; for example, for colouring vinyl interlayers for safety-glass lamination. POLYTHENE

Polythene materials can be dyed in the same way as the vinyl polymers, but again the same difficulty of colour migrating to the surface on prolonged standing is encountered. Investigations have shown that the migration is connected with the solubility of the colour in the polymer, and it may be anticipated that at elevated dyeing temperatures this is greater than at room temperature; thus, on re-moving the dyed plastics from the hot dyebath, and cooling to room temperature, a supersaturated solution of dye in the polythene may result, giving rise to unstable coloration. If the concentration of colour in the dyeing operation is limited so that the cold saturation value of the polymer is not exceeded, increased stability should be obtained. This has been shown to be the case, but it will be evident that the depth of shade which can be obtained will be severely limited. If dyeing is prolonged to ensure

Table 3.—Fastness Results For Cellulose Nitrate.

	Light Fast-
Colour.	ness on Trans
	parent Sheet
Dispersol Fast Yelle	OW
A 300 Pdr. Fine	5-6
Dispersol Fast Oran	nge
G 300 Pdr. Fine	3
Dispersol Fast Crims	on
B 150 Pdr.	2-3
Duranol Brilliant B	lue
BN 300 Pdr. Fine	1

(Turn to page 58.)



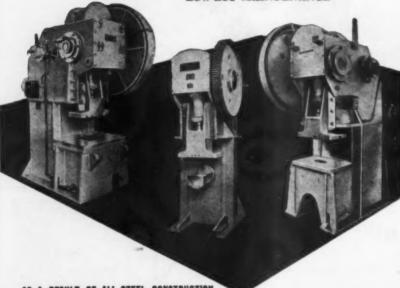


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Manufacturers of the largest range of All-Steel Metal Working Machinery in Australia. (Continued from page 56.) complete penetration without super saturation of the polymer, certain satisfactory weak shades can be obtained.

CASEIN

Casein plastics can be readily dyed from a bot, weakly acid dyebath, using acid dyestuffs or products of the solubilized acetate rayon type. A typical recipe is as follows:

0.01 parts Solacet Fast Blue 2BS Dissolved in 100 parts water Add 0.04 parts formic acid (90 per cent).

Raise temperature to 70°C., immerse approx. 20 parts by weight of casein plastics in the liquor, and agitate for 10 mins. A medium-depth shade is thereby produced. This type of process has been in common use in the button industry for a considerable time. Its amin defect is that however these types of dyestuffs are applied results have poor fastness to laundering and damp pressing. This is frequently manifest in the colour of dyed buttons, washing out, or seriously marking off on to garments during laundering.

The fastness of dyed casein plastics can be markedly improved if selected dyestuffs are employed in a water soluble form, and subsequently converted to an insoluble form in the surface of the casein by an after treatment. Two bathdyeling processes are required and since the final shade is not evident until after treatment is complete, more technical control and skill in matching is required than for the earlier process. However, this would appear well justified in view of the improved fastness obtained.

POLYSTYRENE

Cast polystyrene sheet can be dyed in an analogous manner to acrylic sheet. However, most commercial polystyrene injection mouldings tend to craze or shrink during a dyeing operation. In the former case a matt-coloured surface, lacking the characteristic lustre of the moulding before dyeing, is obtained. More detailed examination shows that this consists of small cracks in the surface filled with dyestuff. It is not known whether purer grades of polystyrene or materials which have been annealed may dispose of these difficulties.

NYLON PLASTICS

A large amount of data has been published on the dyeing of nylon textiles, which has been found relevant to dyeing nylon mouldings and extrusions. The plastics industry frequently requires a less time-consuming dyeing operation than is employed in textile operations, and Solacet-type dyestuffs have been employed to dye nylon mouldings in a 5-10 mins. immersion in a 0.1 per cent. aqueous dye-liquor at

(Turn to page 61.)



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(Continued from page 58.) 80-90°C. The dyebath is exhausted if a standing bath is employed, and replenishment of colour to compensate is necessary.

The dyeing of nylon plastics may be regarded as a simple means of obtaining coloured mouldings which obviate the difficulties of more conventional methods of more conventional methods of more conventional methods of mass-colouring a highly reactive polymer melt which destroys a large number of organic colourants. A dyeing technique is already in use on extruded filaments for brush tuffings, fishing lines, surjectal autures, and for wig-making for theatrical purposes and for shop models and dolls.

ALLYL ESTERS

Limited dyeing trials on C.R. 39 and certain low-pressure laminating resins of the allyl ester type have shown that adequate colouration of these materials may be achieved by the benzyl alcohol process.

UREA-FORMALDEHYDE MOULDINGS

The case of dveing of a ureaformaldehyde moulding with selecacid and direct dyestuffs depends on the state of cure, so that slightly under-cured surfaces dye rapidly to a deep shade in a short eriod at 90 C., whereas a more fully-cured surface may be left almost white. Longer dyeing at the boil may colour the latter satis-factorily, but the former then lose polish and a soft, chalky surface shows that degradation has begun. Efforts to minimize this by stoving the mouldings prior to dveing give only very slight advantage, the problem has not yet been satisfactorily solved

PHENOL-FORMALDEHYDE

Methods of dyeing phenolic resins have been mentioned in published literature. However, it has been found that the dyeing of cast phenol-formaldehyde resins is fairly readily accomplished using the benzyl alcohol process described previously. Phenol-formal-dehyde mouldings can also be dyed by this technique, but any slight mottling may be accentuated, and similar difficulties may be encountered to those experienced in surface dyeing urea-formaldehyde mouldings.

COMMERCIAL SCALE

Operation of the above techniques on a commercial scale has usually been carried out using a standing bath, being replenished as exhaustion takes place. However, certain precautions are necessary which may be summarised as follows:

- Inert materials must be employed for containers for hot dye-liquors, e.g., monel metal, vitreous enamel.
- (2) Free access of dye-liquor to each portion of the plastics material must be maintained, and some agitation of the former is necessary.

- (3) The material must be clean before dyeing, particularly from buffing grease or other water-registant materials.
- (4) The dyestuffs must be thoroughly dispersed or dissolved in the liquor before use.
- (5) The material must be completely submerged under the liquor until dyeing is complete, then rinsed immediately.

It will be noted, no doubt, that the ideal of employing entirely aqueous dye-liquors has been slightly departed from, in cases, where a small amount of benzyl alcohol has been introducd into the dyebath to speed up the dyeing of certain plastics at temperatures well below the softening point of the material. If it is necessary to employ some solvent in this re-spect, it would seem that this should be non-volatile, water miscible, have some solvent action at low aqueous concentrations, and be non-acidic, non-toxic and non-inflammable for safe handling. Since it has already been mentioned that in cases where no chemical affinity exists between the plastics and the dyestuff, a mechanism involving transfer from the aqueous phase to the plastics phase has to be considered, it may now be advantage ous to review evidence to support this. An analogy may be drawn between theories put forward on the dyeing of cellulose acetate rayon textiles and acrylic sheet. In operating the bensyl alcohol process by a standing bath technique, a large number of sheets of Perspex may be dyed one after the other before any diminution of strength is no-ticeable, and a limiting depth of shade is obtained on this material with increasing concentration of dyestuff in the liquor or with increased periods of immersion. This may suggest that as the surface of the sheet becomes saturated with dyestuff the rate of transfer of the latter from the dye bath to plas-tics reaches an equilibrium. Support for this suggestion is given by the fact that a "blank bath" can used to partially strip a dyed sheet until an equilibrium state is reached when colour-stripping ceases. A fresh "blank bath" will then remove a further portion of the remaining colour, and so on.

A.P.M. REVIEW.

A comprehensive brochure to take the place of a detailed address at the Company's annual meeting, has again been issued this year by Australian Paper Manufacturers Ltd.

The brochure gives a detailed analysis of the company's finances, reviews production and supplies, and deals with the human factor in industry.

Directors state that the increase in profit from £260,695 to £361,701, was largely contributed to by record sales of £30,040 tons, an increase of 6,000 tons over the preceding year.



provides an unrivalled rapid method for thoroughly protecting metal parts and the more simple assemblies against corrosion.

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GLOSCOAT gives excellent protection in all conditions likely to be encountered, particularly in het, hamile another the particularly in het, hamile another the het hamile another the het hamile another the head of the head

NOTE: The removed GLOSCOAT can be remelted repeatedly for further use.

METHOD OF APPLICATION: GLOSCOAT is applied by a simple dipping operation, using a special melting tank, as illustrated, to avoid local hotspots and overheating of the plastic.

A temperature of '180°C.-200°C. is recommended for coating purposes, working within these limits, the thickness of coat can be varied to suit individual requirements. For example, a thickness of .080in. is applied when the article is dipped at 190°C.

GLOSCOAT is thermoplastic and sets almost immediately after the component has been removed from the tank.

ADVANTAGES OVER OLD METHODS:

The light coloured transparent coating enhances the sales appeal of the coated article. For example, data engraved on gauges, tools, etc., encased in GLOSCOAT is visible to clients and articles can be handled freely without the danger of corrosion from the moisture of the fingers. Its high impact resistance gives protection against accidental damage through dropping.

- GLOSCOAT in one operation completely preserves and protects.
- GLOSCOAT is easy to apply and simple to remove.
- GLOSCOAT eliminates preservatives and dessicants.
- GLOSCOAT reduces bulk of packed articles, an important consideration if transmitted by air freight. Parts coated are ready for immediate use when received, as no degreasing is necessary.

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[Page 62, September 30, 1950.]



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Information Sheet No. S.5—"A
Method of Removal of Organic
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prepared to answer specific enquiries addressed to D.R.L. and
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The presence of organic matter in nickel solutions can give rise to various defects in the nickel deposit, depending on type and concentration of organic impurity. The method given in this publication has been found suitable for treating Watts type nickel solutions. Potassium permanganate is added to oxidize the organic matter and to adsorb some of it on the resulting precipitated manganese dioxide.

STEEL FOR £4M. PIPE-LINE.

The first consignment of 20,000 tons of steel ordered from England for the £4m. Mannum-Adelaide pipe-line arrived at Port Adelaide recently.

The initial rhipment of 200 tons will go to the Hume Pipe Co. Ltd., Keswick, which is sharing the contracts for supplying the piping which will bring Murray water to Adelaids.

The construction of the pipeline, which will deliver 11,000m. gallons of water to Adelaide, has now started. A camp to accommodate 200 men is located at Mannum, where the first pumping station will be built.

A pilot 6-in, pipe-line is being laid from Mannum to Palmer to provide water for the camps and for the work on the big pipe-line.

HONOUR FOR TECHNOLOGY UNIVERSITY.

The New South Wales University of Technology has been admitted as a member of the Association of Universities of the British Commonwealth.

At a recent meeting, the governing council of the University of Technology expresed its appreciation of the purchase by a number of industrial firms in Sydney of academic robes and ceremonial equipment for the use of the council and senior members of the University.

The Nuffield Foundation sent a letter saying that, following the establishment of the Nuffield Research Professorably of Mechanical Engineering at the University of Technology, the Foundation was seeking further opportunities to foster research in this country and aid the exploitation of Australia's potential resources.



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Particulars of the necessary procedure will be supplied by any Patent Attorney practising in the Commonwealth.

PATENT SPECIFICATIONS **ACCEPTED**

DOOR LOCKING MECHANISM. 133,034.—Houdaille-Hershey Corp. Claim 1. A door locking mechanism comprising a rotary lock-

ing bolt for latching engagement with a keeper, a take-up lever pivoted at one end, a rotor lock-ing lever pivotally mounted on

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PATENTS, TRADE MARKS AND REGISTERED DESIGNS

said rotary bolt for engagement with said take-up lever, a spring acting on the rotor locking lever urging its engagement with said take-up lever when the rotary bolt is engaged with a keeper, a rotatable dogging lever rockable in the plane of the door support-ing the unpivoted end of the takeup lever when the rotary bolt is in latching position and having a aafety catch arm engageable with a keeper, a roll-back lever arranged for retracting the dogging lever, and a lever rockable parallel to the door edge for operating the roll-back lever to re-tract the dogging lever. Claim 12. A door locking struc-

ture for mounting on an auto-mobile door and having parts for autoco-operation with the inside moulding of the door, including a moulding of the door, including a rotor bolt having a setting arm and a locking arm, a rotor locking lever pivotally connected to said locking arm, a take-up lever for co-operation with said rotor locking lever to hold said locking arm, spring means for urging said rotor locking lever and said take-up lever into closer cooperation, a dogging lever rock-able in the plane of the door having an arm for movement into safety-latching position, a locking lever key-operated from the outside and having a projecting por-tion arranged to strike said spring means when said door is open and said locking lever is moved toward locking position to pre-vent movement of said locking

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lever into full locking position, a releasing lever rockable parallel to the door edge for co-operation with said dogging lever to move its said arm out of safety-latching position, a lever push-button operated from the outside for actu ing said releasing lever, an im-mobilising lever having a portion for engagement with said locking lever to actuate the same and a portion co-operating with said dogging lever to immobilise me, means operable by the inside door handle to actuate said immobilizing lever and means for moving said immobilizing lever engagement with said locking lever and into immobilizing position with respect to said dogging lever, said means being adapted to thereupon be engaged with the inside moulding to hold all parts of said locking structure all parts of said locking structure immobilized and incapable of being moved by said key operated locking lever or by said inside door handle operated means.

GREASE SEPARATOR OF CONTINUOUS FLOW TYPE. 138,010.-R. H. Newman and M. P. Hirshstein.

Hirshstein.

Claim 1. A grease, oil and fat retrieving device of the continuous flow rectilinear receptacle type having a waste water inlet at one end and a waste water outlet at the opposite end disposed to determine the normal water level within the receptacle characterized by a water baffling systerized by a water baffling sys-tem including a partition wall dis-posed to divide the water cham-ber of the receptacle into a turbulence zone and a relatively scent grease collecting sone and a series of baffles adjacent the inlet serving to divide the inflowing waste waters into two auxiliary streams and a main stream, one of the auxiliary streams being directed toward the outlet imme-diately adjacent the bottom of diately adjacent the bottom of the receptacle and the other aux-illary stream being directed up-wardly and then horizontally against separated grease, oils or fats and the main stream being directed into the turbulent zone to facilitate separation of grease, oils or fats contained in the in-

> IMPROVED GYRATORY CRUSHER.

138,000.—S. W. Trayler, Jnr. Claim 1. A crusher comprising frame, a concave within the a frame, frame disposed on an upright axis, an upright gyratory shaft and a head carried thereby for co-operation with said concave, an annular backing for the concave disposed interiorly of the frame, a seat upon which the backing is normally disposed, and resilient means urging the backing down-wardly upon said seat, said resil-ient means permitting the concave and its backing to relieve undue crushing strains imparted thereby by said head.

CATHODE RAY TUBE. 138,204.—A. C. Cossor Ltd. Claim 1. A cathode ray tube in which an electron beam desired ultimately to travel along a cer-tain path is first projected from an electron gun in another direc-



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tion than that of this path and then turned onto the said path by a constant magnetic field characterised in that the bulb and neck of the envelope are rotationally symmetrical about an axis with which the said path is coincident or parallel, and in that the electron gun is arranged within the neck, also symmetrically about the same axis, except for the aperture in the anode or first anode of the gun being eccentrically located to one side of the axis for the purpose of directing the electron beam emerging from the anode or first anode at an angle to the said axis towards the other side of the axis thereafter being restored to the said desired path by a constant magnetic field in the known manner

FLEXIBLE CABLES.
137,994.—Teleflex Products Ltd.

Claim 1. A flexible cable of the type set forth in which the outer compression lay has laid between its turns an outer helical wire of the same pitch and hand to lie in the recesses between the turns of the said compression lay and to project beyond such lay in such manner as to leave a groove between its own turns, for the purposes set forth.

CLOSURE-CAP FOR CON-TAINERS. 187,996.—Vauxhali Motors Ltd.

Claim 1. A closure-cap device for receptacles and containers covered by a casing or similar comprising a covering, comprising plate which carries pivoted springpressed closure-disc for the neck of the receptacle and which in the close position is detachably latched to said neck and fills an aperture in the casing.

COTTON PICKING MACHINE.

137,963.—A. W. Weems. Claim 1. A cotton picking machine comprising a vehicle, a bank of spindles mounted on the vehicle and arranged in a plurality of rows, a bank of strippers, each of said strippers being longi-tudinally bored for reciprocation tudinally bored for reciprocation of one of said spindles there-through, a power unit carried by the vehicle, driving connections between said power unit and said bank of spindles to effect reciprocation of the bank of spindles as a unit and continued rapid rotation of each of said spindles while said bank of spindles is reciprocating back and forth, said bank of spindles being positioned on the vehicle to enter a row of cot-ton plants from one side thereof while reciprocating in a path at a right angle to the path of move-ment of the vehicle along said

METAL MOULDING MACHINE.

137,995.—J. H. Toms, N.S.W. Claim 1. A moulding machine comprising a lower mould plate. comprising a lower mould plate, an upper mould plate adapted to co-act with the lower mould plate to form one or more mould cavities, and a hopper plvotally mounted on the upper mould plate and adapted to provide pouring gates in one position and to shear the risers in said gates when rotated from said one position.

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MAKING PAPER CONTAINERS. 137,997.—Lily-Tulip Cup Corp.

Claim 1. Apparatus for making paper receptacle body, compris ing co-operating male and female die members for pressing a blank into final body form, mechanism so constructed and arranged as to so constructed and arranged as to pre-fold said blank into approxi-mate body form and feed said pre-folded blank axially into said female die member, mechanism operable in timed relation to said pre-folding mechanism for successively moving said female die into position to receive folded blank and then receive said preinto operating position with respect to said male die, and mechanism for moving said co-operating die members into operative pressing position to thereby press said blank into final body form. Claim 7. A process for making

Claim 7. A process for making paper or the like receptacle bodies having a thermo-plastic adhesive side seam which comprises engaging intermediate its opposite ends the inner face of a body blank having non-tacky adhesive applied to a face of one end margin and feeding the blank in a direc-

tion normal to the plane of the blank while simultaneously folding it peripherally into approximate body form so as to bring orresponding opposite portions of its ends into overlapping relationship with said end adhesive interposed, then feeding the blank in the direction of its folded axis while maintaining its approximate peripheral contour, thereafter restraining said prefolded blank to the exterior peripheral contour of said receptacle body and while so restrained internally expanding said pre-folded blank to the interior peripheral contour of said receptacle body and while so restrained internally expanding said pre-folded blank to the interior peripheral contour of said receptacle body and while so held applying heat and pressure to form a body seam, and cooling said body thus formed to prevent delamination.

MOVING VANE SIGN. 138,000.—F. R. Foxcroft Sign Co. Pty. Ltd.

Claim 1. An improved moving vane sign characterised in that a series of pairs of arcuate vanes is mounted within a sheet metal or wooden housing having a glass front, each pair of vanes comprise a stationary vane and a moving vane having a radius of curvature slightly greater than that of the stationary vane, crank arms are attached to the upper and lower extremities of said moving vane, plvot pins held in said arms locate the moving vane concentrically with said stationary vane, either the upper or lower arms extended rearwardly and are pivotally attached to a common operating bar which is given reciprocatory motion, and said vanes are so located in one extreme position of the operating bar the stationary vanes are visible, whilst in the other extreme position of the operating bar, the moving vane or part thereof, is visible and the stationary vane is completely hidden.

TELEPHONE MOUNTING. 138,008.—Standard Telephones and Cables Pty. Ltd.

Claim 1. A mounting for hand telephones, comprising a casing having a cradle at the top thereof with the rear wall of the casing extending upwardly and forwardly towards said cradle, said wall having a portion thereof disposed for a distance more sharply forwardly than the rest of said wall and then substantially vertically to the rear of said cradic, and a projection extending in overlying relation to at least a part of said wall portion to provide a finger hold by which the mounting may be lifted.

TRADE MARK APPLICATIONS

97,222. "Eisett." Locks, including padlocks, made wholly or chiefly of metal.—"Eisett" Hardware Manufacturing Co. Ltd., 1-5 Beneze utcs, Budapest XIII, Hungary.

97,280. "Pascorane." Irrigation spraying apparatus.—Pascoe & Company Limited, Port Road, Woodville, South Australia.

97,143. A design of the word "Cirane." Enamel and metal badges.—A. J. Parkes & Co. Pty.

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96.836 "Paulco." Machine tools, including drilling machines and lathes.—Paul's (Merchants) Pty. Limited, 314 Pitt Street, Sydney, N.S.W.

95,123. "Length-Mark." Electric cables.—Rhodesian Cables Ltd., 74 Manica Road, Salisbury, Southern Rhodesia.

95,418. A circle designed with lines. Electric cells and batteries. Eveready (Australia) Pty. Limited, Rothschild Avenue and Harcourt Parade, Rosebery, Sydney N.S.W.

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TENDERS FOR PATENTS

NOTICE is hereby given that the proprietor of Australian Patent No. 124,877. dated November 7, 1943. for "Improvements relating to Hydraulic Couplings", is prepared, under the provisions of the Patents Act, 1903-1946, to satisfy any demand and all requirements of the public respecting the said invention. Full particulars from P. M. NEWTON & SON, Patent Attorneys, 405-7 Collins Street, Melbourne. NOTICE is hereby given that

Melbourne.

THE PROPRIETOR of Australian Letters Patent No. 122,867, dated 10th October, 1944, relating to "Cardboard or like Container with Metal Rim", is prepared to meet trade and public requirements for this invention, pursuant to Part V of the Australian to Part V Patents Act.

Further particulars are obtain-

EDWD. WATERS & SONS, Patent Attorneys, of 11-13 Castle-reagh Street, Sydney, and 422-428 Collins Street, Melbourne.

"GRINDING OR ABRADING MACHINES FOR USE IN REFACING VALVES."

NOTICE is hereby given that the owner of Australian Letters Patent No. 134,097, dated the 14th October, 1942 is desirous of disposing of its rights in this invention by way of licence or otherwise.

wise. Further particulars will be sup-Furner particulars will be sup-plied on application to DAVIES & COLLISON, Fellows of the Institute of Patent Attorneys of Australia, Temple Court, 422 Collins Street, Melbourne, C.1.

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Batteries, 6 Volt. (50/3417). Re-Service Co., Batteries

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Commercial Copper Sheets (50/
3163). Austral Bronze Co. Pty.

., £442/17/4 Cabin Biscuits and Containers

(50/3470) William Arnott Pty. Ltd., £1,165/4/2. Water Mops, with Handles (50/ 12). F. W. Keats & Co., 3112).

1815/12/6.
Fans, Electric (C.4/Fanmaster Co., £1,836/8/-, (C.4/307/234).

Fork Lift Trucks (C.4/811/12). Lawton Industrial Trucks Ltd., £14 975/16/7

Garbage Bins (C.4/360/37). Simpson & Son Ltd., £2,780/6/3. Stockpots, Steam Jacketted (C.-4/362/49). Metters Ltd., £24,444.

Brooms, Millet (C.4/157/23). Australian Broom Co. Pty. Ltd.,

Squeegees, Bubber (C.4/157/28). John Zevenboom & Co. Pty. Ltd., £88/2/6.

Shovela (C.4/171/72). Trojan Ltd., £195/15/9.

Teapots, Aluminium (C.4/175/ i). A. G. Way & Co. Pty. Ltd.,

1231.
Dishes, Baking (C.4/175/162). A. Joyce & Co. Pty. Ltd., 1480.
Jugs, Aluminium (C.4/175/162).
Crusader Plate Co. Pty. Ltd.,

pots, Aluminium (C.4/173/ A. G. Way & Co. Pty. Ltd., Teapots,

(C.4/250/90). Johnstons Pty. Ltd., £288/15/-.

Floor Polish, Wax (C.4/180/63). Dominant Chemical Co. Pty. Ltd., £259/9/3

Portable Dial Platform Scale (C.4/184/20). Brice Scale Slicer Co., £193/10/-.

Uniforms, Female (C.4/251/67). Engros, £168/8/9.

Feit, White, Proofed (C.4/259/

£7,642/1/10. Transformers (C.4/307/220).
Amalgamated Wireless (A'asia.)
Ltd., £81/14/-; Thom & Smith (C.4/307/220). Ltd., £81/14/ Ltd., £209/5/-

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A. G. Healing Ltd., £233/6/-.

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Pty. Ltd., 2978.

Racks, Pot (C.4/350/28). E.

Hancox & Co., £3,810/13/6.

Hospital Beds (C.4/386/119).

Acme Bedstead Co. Pty. Ltd.,

Grinding Machine Grinding Lodge & Machine (C.4/813/202) Co. £1.533/5/-.

Sanding Machine (C.4/313/231). McPherson's Ltd., £175.

Bollers, Steel, Oval (C.4/362/18). A. G. Way & Co. Pty. Ltd., £305. Steel Filing Cabinets (C.4/380/

Ltd., £1,447/12/-.
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Dental Equipment (50/2122). Rudolph Gunz & Co. Pty. Ltd., £428/18/-

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(Turn to page 75.)



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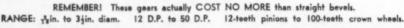
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(Continued from page 72.)

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File No. C4/175/182). Harris,

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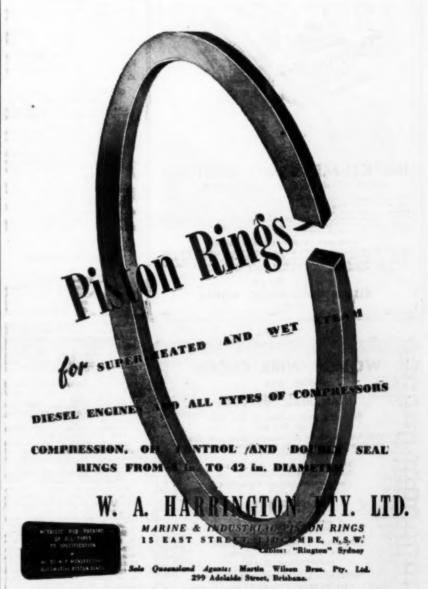
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z3,909. Queens Bridge Motor and Engineering Co. Pty. Ltd. Tubular Steel Scaffold Fittings, i in. dia., £2,600. John Lysaght (Aust.) Pty. Ltd. Pipes and Fittings, r.c., 15 in., 11,022 ft.; 12 in. dia., 4,200 ft., £13,900. Humes Ltd.

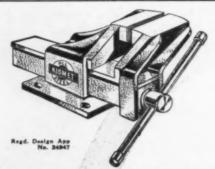
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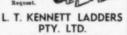
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cid-resisting Enamels for Bath Tube (Dry Process). Liquid Cast from Enamel for Stoves. Leadless or Load Containing for use with or without underseat, and Shoot Iron Enamels for Refrigorators and Flat Work, Acid-resisting or Ordinary.

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CURRENT TENDERS

NEW TENDERS

The following tenders have been called since our last issue. Current tenders which have been published in previous

COMMONWEALTH

AUSTRALIAN ALUMINIUM PRODUCTION COMMISSION

M.S. Round, 3,000 lengths, each 4 ft. 1 in. x 5 in. dia. (Spec. M23). Oct. 28.

DEPARTMENT OF WORKS AND HOUSING.

Curtains, 245 pairs, for Hotel Kurrajong. Oct. 3.

Heating and Hot-water Systems, for Forestry School. Oct. 2.

Specimen Cabinets (5), for Bureau of Mineral Resources. Oct. 3.

Typists' Desks (20), for Taxa-tion Department. Oct. 3.

Uphoistered Fireside Chairs (157), for Hotel Kurrajong. Oct. 3. Wall-to-wall Carpet, Sp Rubber and Runner Carpet, Sponge Parliamentary and lay. Oct. 3. Library, Supply

Wall-to-wall Carpet, Carpet Squares and Underfelt, for Hotel Kurrajong, Supply and deliver. Oct. 3.

GOVERNMENT BAILWAYS DEPARTMENT.

Diesel Electric Locomotives. Nov. 14.

Locomotive Fire Bricks. Oct. 10. Open Goods Waggons; Freight Car Bogies. Extended to Nov. 21. Railway Wi Wheel and Axie

STORES, SUPPLY AND TENDER BOARD. Pencils (Sch. C.T.B. 895). Oct.

NEW SOUTH WALES

GOVERNMENT RAILWAYS DEPARTMENT

Air Break Isolating Switches (241), Outdoor Manually and Power Operated; current ratings, 300-1,300 amperes at voltages 33 k.v. to 132 k.v. (Spec. 1270). Nov.

Cable, Cadmium Copper Stranded, hard drawn (Quot. CE-1438).

Coal Weighers (Spec. 1274). Nov.

Sawdust, Annual Contract (Sch. 146). Dec. 31.

DEPARTMENT OF MAIN BOADS.

tons of Bitumen supplied by the Department. Oct. 5.

Centrifugal Water Pump. Oct.

Man-proof Fencing, 1,371 lin. ft.; chain wire fencing, 302 lin. ft., with tubular rail, for Dubbo, Sup-ply and erect. Oct. 5.

Vehicle Grids. Oct. 10. Wire Grilles, for Windows. Oct.

DEPARTMENT OF PUBLIC

WORKS. Booster Pumping Plant, Elec-

trically Driven trically Driven (Spec. 79 for Muswellbrook, Oct. 9. 79-49/50),

Crushing, Screening and Storage Plant, for Clarence Harbour Works (Spec. 104-49/50). Oct. 23. Bitumen Emulsion (200,000 gallons), or alternatively the manufacture into emulsion of up to 500 (Turn to page 72).

NICHRON SISTANCE W

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NEW TENDERS - Contd.

Harbour Works, Supply and de

riarroutr works, Supply and selver (No. 98-49/50). Oct. 18. Dewatering Fumps. Oct. 11. Elevated Tank, Ms. 50,000 gallons, Supply and erect, for Howlong-Water Supply (Spec. 46-48/49). Oct. 30.

Flue Pipes. Oct. 11. Gloves. Oct. 11.

Kerosene Refrigerator. Oct. 11.
Laundry Equipment. Oct. 4.
Power Transformers, 30,800
KVA (2), for Southern Electricity

ava (2), for Southern Electricity Supply. Extended to Oct. 9. Pamping Plant, Electrically Driven Deep Well, for Gumedah Water Supply Augmentation, Sup-ply and delivery (Spec. 83-48/39). Oct. 3.

Pumping Plant, Driven (Spec. 108-49/50), for Forbes Water Supply Augmentation. Oct. 23

Pumping Piant, Electrically Driven (Spec. 117-49/50), for Al-stonville Water Supply. Nov. 20. Elegulating Transformers, 11-4.6 KV, for Southern Electricity Sup-

Sewage Ejector Units. Oct. 11. Sewerage Pumping Plant, Elec-trically Driven, for Murwillumbah Sewerage, Supply and delivery (Spec. 28-49/50). Oct. 23. Ships' Felt. Oct. 11. Sheet Zinc. Oct. 11.

Transfermers, 132-66/11 KV, 27. MVA (2), for Southern Electri-

city Supply. Nov. 11.

Water Flitration and Softening
Plant (Spec. 99-49/50), for Carcoar District Hospital. Oct. 9.

Water Meters (11), for Country Towns' Water Supplies. Oct. 9.

PORESTRY COMMISSION

Auto Gaskets. Oct. 3. Castors, rubber-tyred. Oct. 3. Jeep Parts. Oct. 3.

Johnery. Oct. 3.

Motor Truck Bodies. Oct. 3.

Searchlights, 12 V. Oct. 3. Seed Sower, hand. Oct. 3.

METROPOLITAN WATER, SEWERAGE AND DRAINAGE BOARD.

Automatic Injet Control Valves (5), and Control Mechanisms (Job 2452). Oct. 17.

+ + SEE ALSO + + "LATE OPEN TENDERS"

Fluorescent Light Pittings (Con. 2417). Extended to Oct. 3. Platform Hoists, Control Gear, etc., 4,000 lb. mln. cap. (2, 4, or alternatively 6), Supply and instal (P.T. 385). Oct. 31.

STATE CONTRACTS CONTROL BOARD.

Cabinets and Basins. Oct. 3. Combs. Oct. 2. Cultivators. Oct. 10. Duplicating Machine

(Spirit).

Dynamometer. Oct. 3. Handkerchiefs. Oct. 3. Hand-operated Adding-listing trict W. achine Oct. 3.

Operating Table. Oct. 3.

Tubular Steel Chairs. Oct. 3. Writing and Printing Papers. Oct. 3.

SYDNEY COUNTY COUNCIL.

Oil Emersed Fuse Switches, 11,000 volt. (Spec. 1421). Extended to Oct. 19.

WATER CONSERVATION AND IBBIGATION COMMISSION.

Steelwork, for Screen Struc-tures, for Hydro-electric Outlets at Burrinjuck Dam. Oct. 19.

MISCELLANEOUS

Berryman Loaders (2), for 4 cub. yd. Ford Tipping Trucks; Fantall Screening Spreaders (2), for same Fords; Motor Trucks (3), 4 cub. yd. Hipping body; Emulsion spraying unit, for Shire of Waugoeia. Oct. 13.

Bound Reinforcement (2,349 lbs. of 1 in. dia; 9,688 lbs. of 1 in. dia; 1,687 lbs. of 11 in. dia), in specified lengths, for Shire of Urana. Oct. 6.

Steel Grids (24), for Motor By-passes, 9 ft. x 6 ft., for 8-ton gross vehicle load, for Shire of Crook-well. Oct. 11.

Steel Frames, for Buildings, for Shire of Sutherland. Oct. 23.

Water Fumping Units (2), electrically driven, for New Lambton (Con. 676); Water Pumping Units, electrically driven (2), for Violet Town (Con. 677), for Hunter District Water Beard. Extended to

VICTORIA

CITY OF MELBOURNE.

Fabricated Structural Steelwork (Spec. 736/E). Extended to Nov.

DEPARTMENT OF SUPPLY AND DEVELOPMENT

Alkaline Battery. Oct. 5. Aluminium Canisters. Oct. 3. Boilers, Cast Aluminium Oct. 3 Boilers, 12-gallon. Oct. 3. Boilts and Nuts, Miscella Oct. 5.

Colours and Primers. Oct. 3. Contact Pins and Contacts. Oct.

Electric Motors. Oct. 5. Electric Ovens. Oct. 5. Nuts, various. Oct. 5.
Nuts, various. Oct. 5.
Prepared Paints. Oct. 5.
Screws and Washers. O.
Surface Tables. Oct. 19.
Surface Tables, Gauges.

Steel Bedsteads. Oct. 3.

Transit Plugs. Oct. 5.

Tubular Metal Furniture. Oct.

Wind Vanes. Oct. 3.

DEPARTMENT OF PUBLIC

Electric Bath-heater, for Rosedale. Oct. 10. Kerosene Hot-waine Service, for Bairasdale. Oct. 10. Electric Hot-waine Service, for Bairasdale. Oct. 10.

(Turn to page 86.)



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FOR THOSE SMALL CASTINGS 6 to 7 oz. Capacity Zinc Base Tin or Lead



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windings for more than 10 seconds when cold, or 2 seconds when hot. The OTTER also affords progressive current overload protection until a tamparature of motor reaches a temperature of 170° F., when it is switched OFF



and must remain OFF motor cools down some 20° F. The OTTER Motor Protection Therine OTTER Motor Protection Thermostat (EXTERNAL fitting type) just clamps round the body of the motor. Any qualified electrician can de the job within 10-15 minutes, as the motor need not be removed. removed.

For motor manufacturers and motor repair men there is also available the INTERNAL fitting type (not illustrated here).

illustrated here].
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243 Castlereagh St., Sydney.

NEW TENDERS - Contd.

Electric Passenger Lift, for Melbourne. Oct. 10.

Fire Escape Staircase,
Colac West. Oct. 10.

Colac West. Oct. 10.

Heating and Ventilating Equipment, for Flora Hill. Oct. 10.

Kerosene Hot-water Service, for Bruthen. Oct. 10.

Kerosene Hot-water Service, for Yarragong. Oct. 10. Sawdust Extraction Equipment,

for Oatley. Oct. 10.
Woollen Ring Spinning Frame,
for Ceburg: Oct. 3.

DEPARTMENT OF WORKS AND HOUSING.

Steelwork and Brasswork, Cable Support, for Melber Extended to Oct. 24. Melbourne. Structural Steelwork, for Highett. Oct. 10.

Terra Cotta Marseilles Pattern Roofing Tiles (apprex. 158,000), for various States. Oct. 3.

GOVERNMENT RAILWAYS
DEPARTMENT.

Auxiliary Transformers, 50 and 6 KVA. Oct. 25. 200 KVA. 200 KVA. Oct. 25.

Bare Hard Drawn Stranded
Copper Conductors. Nov. 8.
Roller Bearings. Nov. 1.
Roneo Duplicating: Machines,
Second-hand, Purchase of. Oct.

Uniforms. Oct. 10.

MELBOURNE HARBOUR TRUST

Boller Feed Pumps, driven (6). Oct. 27. steam-

MELBOURNE AND METRO-POLITAN BOARD OF WORKS.

Crushing Plant (conveyors, elevators, screens, crushers feeder). Oct. 24.

Salt-glazed Stoneware Pipes and Pipe Fittings from sources out-side of Victoria. Extended to Oct.

POSTMASTER-GENERAL'S DEPARTMENT

Rubber Knee-Boots (Sch. V.382). Oct 24 Second-hand Motor Covers, Pur-chase of (Sch. V.401). Oct. 10.

STATE ELECTRICITY COM-MISSION.

Bore Sluice Valves, 42 inch Spec. 50-51/107). Oct. 18. Metal Plant Switchgear and Acories, 20 KVA, 25 Cycles (Spec. 50-51/100). Nov. 22.

MISCELLANEOUS.

Electric Welder, d.c., portable engine-driven; Excavator, 3/8 cub. yd., complete with back trencher, dragfine attachments and spare dragfine attachments and spare parts; front end loader; hydraulic tip truck, 4-yard, for Geelong Water Works and Sewerage Trust.

Petrol and Kerosene; Bitumen Emulsion; Lubricating Oils; Annual Contracts, for City

of Collingwood. Oct. 2.
Pipes, c.i., asbestos cement, or
r.c., for Municipality of Ringarooma. Oct. 21.

(Turn to page \$1.)



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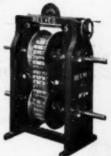
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NEW TENDERS - Contd.

277 CLARENCE STREET, SYDNEY.

Power Grader, medium weight, tandem drive Diesel, for Shire of East Lodden. Oct. 2.

QUEENSLAND

BRISBANE CITY COUNCIL.
C.I. Water Pipes, 6 in. and 4 in.
nominal dia, with spigot and socket ends, suitable for rubber ring
jointing. Oct. 20.

Steel Storage Reservoir (1,000,-000-gallon), Supply and erection, for Grovely (Con. W60/1950). Oct.

Phone: M 2775

Weatherproof Copper Aerial Cable (Con. E.23/1950). Oct. 13.

STATE ELECTRICITY COM-MISSION. Hard-Drawn Bare Copper Cable

Hard-Drawn Bare Copper Cable (Spec. 246). Nov. 8.

STATE STORES BOARD. C.I. Soil Pipes. Oct. 9. Steel Wire Rope. Oct. 31.

MISCELLANEOUS.
Pian Printing Machines, for Cairns Regional Electricity Board (Con. L50/21). Jan. 23.
(Turn to page 32.)

METALS TIMBER PAPER CHEMICALS



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[Page 82, September 30, 1950.]

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NEW TENDERS - Contd.

SOUTH AUSTRALIA

SUPPLY AND TENDER BOARD. Fine Ore Storage Bins. Oct. 2.

NEW ZEALAND

STATE HYDRO-ELECTRIC DEPARTMENT.

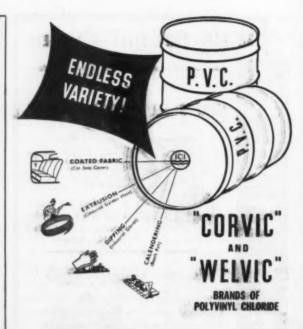
Switchgear, steelwork, 110 kV.

Transformer Bank and Spare Unit, 50 MVA, 220/110/11 kV. Nov.

MISCELLANEOUS.

Cable, 3-core, 6,000 V. Oct. 12. Filtration Plant (Con. 126). Nov.

DO YOU USE OUR INQUIRY DEPARTMENT SEE PAGE 36



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CURRENT TENDERS

The following tenders have appeared in previous issues and are still surrent.

COMMONWEALTH

POSTMASTER-GENERAL'S DEPARTMENT.

Braided Switchhoard Cable (Sch. C.6355). Oct. 12. Cable Identification Sets (Sch.

C.6409). Oct. 17. Communication System between Communication System between Sydney and Melbourne (Spec. C.-8157). Extended to Jan. 18, 1951. Cords, Switchheard Types (Sch. C.6372). Oct. 12. Dial Parts (Sch. C.6338). Oct.

Distributing Frames and Terminal Equipment (Sch. C.6378). Oct.

Eyebolts and Eyebolt Lugs (Sch. C.6415), Oct. 19. Galvanized Iron Sheets (Sch. C.-

6383). Oct. 5. Induction Coils (Sch. C.6391).

Intercommunication Telephones (Sch. C.6384). Nov. 2.

Interruption Cable (Sch. C.6417).

Jacks and Number Plates (Sch. C.6359). Oct. 19.

(Turn to page 83.)

HARD CHROME PLATING for Building Up DIES, GAUGES, SHAFTS

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ment and possible injury to personnel.

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CURRENT TENDERS - contd.

Maintenance Parts, for Tele-hone Equipment (Sch. C.6314). Oct. 5

Mechanics Tools, Gauges, etc. (Sch. C.6411). Nov. 23.

Pilers and Screwdrivers (Sch. 6418). Nov. 30.
Plugs (Sch. C.6363). Oct. 19. C.6418). Portland Cement (Sch. C.6414).

Oct. 12. Printed Forms, Revenue and Expenditure Series (Sch. C.6422).

Printed Forms, Costing "W.P." Series (Sch. C.6430). Oct. 12. Receivers and Parts (Sch. C.6296). Dec. 7.

Switchboard Keys (Sch. C.6404).

Nov. 16. Telephone Meters (Sch. C.6390).

Waterproof Clothing (Sch. C .-

AUSTRALIAN ALUMINIUM PRODUCTION COMMISSION.

Inclined Belt Conveyors (2), galleries and supporting struc-tures (Spec. M.20). Oct. 16.

tures (Spec. M.20). Oct. 16.
Road Transport Weighbridge
(Spec. M.19). Oct. 9.
Travelling Weighing Hopper
and three (3) owt. Platform
Scales (Spec. M.21). Oct. 16.
Worm Reducing Drive (Spec.
CH.7). Oct. 2.

Woven Metal Filter Cloth, 12,000 ft. (Spec. Ch. 3). Oct. 2.

GOVERNMENT RAILWAYS DEPARTMENT.

Covered Goods Wagons. Nov. 7. Diesel Powered Bail Cars, 4ft. 8i in. gauge. Oct. 3. Horizontal Bori Boring

Square Dogspikes, I in. Oct. 3. Water Tank Wagons. Nov. 7.

DEPARTMENT OF CIVIL AVIATION

Approach Light Fittings, intensity (Sch. 308). Nov. 14. Electrical Circuit Breakers (Sch. 09). Oct. 10.

Instrument Current Transformers and Meters, for Switchboards (Sch. 306). Oct. 10.

(Turn to page \$4.)



Nov. v.
Television Installation at Syd-ney (Sch. C.6423). Nov. 21.
Tools-Adjusters and Benders Tools-Adjusters and Sch. C.6429). Dec. 14.

Tools, for Mechanies, Exchange and Sub-station Maintenance (Sch. C.6416). Nov. 30. Transformers (Sch. C.6398). Nov.

Waterproof 6424). Oct. 5. Wooden Crossarms (Sch. C.-6428). Oct. 12.

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CURRENT TENDERS - contd.

and Contactors, for Relays Power Oct 10. Switchboards

Rotating Light Beacons, for Airport (Sch. 307). Nov. 14.

DEPARTMENT OF PUBLIC WORKS.

Water Treatment Plant, for Nowra. Oct. 3.

DEPARTMENT OF SUPPLY AND DEVELOPMENT.

Copper and Lead, Purchase of. Oct. 6

Cooling Machinery. Oct. 3. Phosphor Bronze, Purchase of.

Motor Generating Set. Oct. 12 Scrap Steel, Purchase of. Oct. 6

DEPARTMENT OF WORKS AND HOUSING.

Passenger Elevator, Electrically-driven, for Telephone Exchange, Hamilton. Oct. 17.

Transformers (12), 250 KVA and (2) 750 KVA. Extended to Oct. 3. Transformers (8), (4) 100 K.V.A., (4) 50 K.V.A., for Canberra. Oct. 24.

Water Treat Treatment Plant, for

SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION. Horizontal Surface Grinding Machine, Oct. 2.

STATES

NEW SOUTH WALES

GOVERNMENT RAILWAYS

DEPARTMENT. Cotton Duck (Quot. CE-5050). Oct. 3.

Disconnecting Switches (Quot. CE-1299). Nov. 23.

Electric Overhead Travelling Crane (75 ton), (Spec. 504). Ex-tended to Nov. 1. Overhead Travelling

Traction Gear Wheels, resilient type (Quot. CE-2028). Oct. 6. Transformers (24), 2 KV, 415 v., ranging from 50 KVA to 500 KVA (Spec. 1273). Oct. 25.

DEPARTMENT OF PUBLIC WORKS.

Ashestos Cement, Corr. Sheets.

Auxiliary Relay, Oct. 4. Booster Pumping Plant, elect. driven, for Muswellbrook. Oct. 9. Bronze Rod. Oct. 4. Concrete Mixers. Oct. 11.



shift. A compartment is also provided for each miner's other clothes and personal effects. In all spheres of industry Brownbuilt Installations are found as behind-the-scenes essentials which assist management to higher levels of personnel efficiency and production control. Although steel shortages and national needs preclude short-term deliveries in most lines, rests of customers are protected by steel importations and by increasing facilities at Brownbuilt Plants.

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E. T. BROWN LTD., Brownbuilt Steel Equipment Co. (Reg.), 14-24 Alexandra Parade, Clifton Hill, Victoria. 17 Castlereagh Street, Sydney, N.S.W. Representatives in all other States

Corr. Furnaces, Purchase of.

Derrick Cranes, elect. driven, stiff leg (40 ton), fo River Works. Oct. 16. for Clarence

Dewatering Pumps. Oct. 11. Drifter Drills. Oct. 11. Forge Blower. Oct. 11.

Gas Turrets. Oct. 4. Milling Machine. Oct. 11. Oxygen Cutting Tips. Oct. 4.

Pumping Plant, elect. driven, for Forbes Water Supply. Oct. 23. Ridge Capping. Oct. 4. Boofing Nails. Oct. 4.

Roofing Nails and Screws. Oct. Sludge Pumping Unit. Oct. 4. Sterilizing Equipment. Oct. 4.

Water Filtration and Softening Plant, for Carcoar District Hos-pital. Oct. 9.

Terrazzo Slab. Oct. 4

MARITIME SERVICES BOARD. Asbestos Built-up Roof Covering and Box Gutters, for Glebe Island (Con. 50/38). Oct. 3.

Fluorescent Lighting Fittings. Oct. Metal Cutting Band Saw. Oct.

3.

SEWERAGE AND DRAINAGE BOARD. Automatic Inlet Control Valves (5), and Control Mechanisms (Job

METROPOLITAN WATER,

2452). Oct. 17. C.I. Penstocks (3), meter (Job 2447). E 10 ft. dia-Extended to

Oct 31 Oct. 31.
C.I. Pipes, Spigot and Socket
Pipe Fittings, Stop Valves, Retention Valves and Spring Hydrants
(Job 2450), Oct. 3.
Diamond Drills (4), hydraulic

leed type, and Drilling Equipment (P.T.384). Oct. 10.

Sawdust and Shavings Extractor, maximum cap. 1-ton per hour; Incinerator Plant, capacity approx. 5 tons per day, for Warragamba Dam (P.T. 378). Oct. 17.

STATE CONTRACTS CONTROL BOARD

Steel Shelving. Extended to Oct. 17.

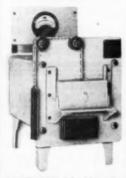
Tools, Optometrical Supplies, Scientific Apparatus. Oct. 9.

SYDNEY COUNTY COUNCIL.

Forged Steel Balls, for Coal Pulverising Mills (Spec. 1470). Oct.

(Turn to page 85.)

"M & S" ELECTRIC FURNACES



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CURRENT TENDERS - contd.

Insulators and Fittings, Outdoor Service (Spec. 1435). Oct.

M.S. Welded Tanks, Miscellan-ous, for Bunnerong "B" Power eous, for Bunnerong "B" I S'ation (Spec. 1465). Oct. 5.

Solenoid Operating Mechanisms, for oil circuit breakers (Spec. 1452). Oct. 26.

Storage Equations (Spec. Storage Batteries and Battery Equipment, for St. Spec. 1446). Oct. 26. Sub-Universal Milling Machine (Spec. 1466). Oct. 12

MISCELLANEOUS.

Curbonising Plant, consisting of vertical retorts, for Bathurst City Council. Oct. 31.

Concrete Mixers, petrol engine driven, 2-7 cub. ft. and 2-3 cub. ft. Oct. 4.

Heavy Patrol Grader, Diesel-powered, 70-100 h.p., power con-trolled, weight about 20,000 lb., fitted with scarifier, for Shire of Tintenbar. Oct. 11.

Mechanical Loader, 3-11 cu. yd. bucket capacity, for Shire of Yal-

larol. Oct. 11. Metalclad Switchgear, 11,000 volt., for Newcastle City Council. Extended to Oct. 9.

Motor Road Graders (3), Diesel-owered and weighing between powered and weighing between 15,000 and 18,000 lbs., for Shire of Goobang. Oct. 18.

Motor Grader, medium, tandem drive, equipped with scarifier, for Shire of Lockhart. Oct. 7. Motor Mower, with 24 inch blade, for Municipality of Dubbo.

Oct.

Oil Circuit Breakers (8), 500 MVA, 33 KV, for Greater Wollongong City Council. Oct. 24 Extended to

Oct. 24.
Outdoor Oil Circuit Breakers
(11), 33,000 volt., for Newcastle
City Council. Oct. 30.
Overhead Loader, for T.D.9
Tractor, and Overhead Loader,
complete, with Tractor, for Shire
of Carathool. Oct. 11.

of Carathool. Oct. 11.
Pipes (4 and 6 inch), for Trunk
Mains; Pipes, 4 and 6 inch, for
Reticulation Mains; Valves and
Fittings, for Reticulation Pipes,
for Central Tablelands County

ouncil. Extended to Oct. 9. Plant:—Diesel crawler-type Trac-

Plant:—Diesel crawler-type Tractor, approx. 49 h.p., and Equipment to suit, including Bulldozer, hydraulic operated, for Shire of Manning. Oct. 7.
Plant:—B.D.8 Caterpillar Tractor, Diesel-engined, of 48 h.p.; heavy duty leaning wheel, Scarfier Grader, 10,500 lb. weight, Purchase of, from Shire of Lockhart. Oct. 7.

Power Loader Suit, for attachment to Tractor, for Kyogle Shire Council. Oct. 6.

Reinforcement Steel, round. specified lengths and various dia-meters, for Shire of Urana. Oct. 6.

Reinforcing Steel:—5 tons i in. dia. bars; 15 tons i in. dia. bars, 5 tons fin. dia. bars, for Namoy Shire Council. Oct. 2.

Tractor, approx. 40 h.p., with angledozer and winch attachments, for Shire of Gloucester. Oct. 6

(Turn to page 86.)



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Sawmakers and Industrial Knife Specialists \$5 JOHNSTON STREET, COLLINGWOOD, VIC.

CURRENT TENDERS - contd.

Transformers (2), 10,000 K.V.A., 33,000-volt., and (3), 5,000 K.V.A., 33,000-volt., for Newcastle City Council. Oct. 30.

VICTORIA

GOVERNMENT RAILWAYS DEPARTMENT

Copper Plates. Nov. 1. Disc Insulators. Oct. 18. Galvanised Fencing Wire. Nov.

Linoleum. Oct. 4 Mobile Cranes, petrol electric. Oct. 4. Oct. 4.
Pin Type Porcelain Insulators
(20 K.V.). Oct. 4.
Sawn Crossing Timers. Oct. 4.
Steel Kit Boxes. Oct. 18.

Tensioning Spring Assemblies. Weldless Mild Steel Angle Bings. Oct. 25.

CITY OF MELBOURNE.

M.S. Pipework and Supports, for Fuel Oil Storage System (Spec. 734/E). Oct. 2. Street Lighting Lanterns (Spec. 735/E). Dec. 4.

DEPARTMENT OF PUBLIC WORKS.

Fuel Hot Water Service, for Lardner. Oct. 3. Hot-water System, for Omeo.

Oct. 3.

Hot-water Service, for Cann River. Oct. 10.

Mechanical Services, for War-racknabeal. Oct. 10.

One-passenger Lift, for Chelten-ham. Oct. 3.

Sector Type Spillway Gates (8), 26 ft. x 23 ft., for Somerset Dam.

DEPARTMENT OF WORKS AND HOUSING.

Boiler House Access Galleries, for Parkville. Oct. 17.
Fuel Oil Burning Installation, for 8 Solid Fuel Fired Steam Boilers, for Fishermen's Bend.

Oct. 10. Steam Piping, for vi States (107,660 ft.). Oct. 17.

> MELBOURNE HARBOUR TRUST.

M.S. Sections and Plates (approx. 163 tons). Oct. 6.

Mobile Crane (3 ton), slewing type. Oct. 20. type. Oct. 20.
Mobile Crane (10 ton), slewing type, with 40 ft. jib. Oct. 20.

POSTMASTER-GENERAL'S DEPARTMENT.

Drills, Sanders and Buffers, elec-tric, portable (Sch. V.396). Oct.

Fram Filters and Morris Fit-tings, Kits (Sch. V.400). Oct. III. Wheeler Bins (Sch. V.395). Oct.

STATE ELECTRICITY COM-MISSION.

Aerial Ropeway, electrically driven (Spec. 50-51/106). Oct. 25.

(Turn to page \$7.)

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CURRENT TENDERS - contd.

Centrifugal Pumps, electric mo-tor driven (Spec. 50-51/63). Oct.

Flanged Steel Pipes and Fit-tings (Spec. 50-51/64). Oct. 18. Mine Winders, inclined haulage, electrically driven (Spec. 50-51/99) Oct. 11

Outdoor Switches and Access-ories, 22 kV and 66 kV (Spec. 50-51/44). Nov. 1.

R.C. Foundations, for Steel-Framed Buildings (Spec. 50-51/ Oct.

Rotary Shears, Plate Splitting Shears, and Punching Machine (Spec. 50-51/93). Oct. 11.

Trailing Cable, V.B.I., T.B.C.S., 6 K.V. (Spec. 50-51/68). Nov.



PIONEER FOR SPRINGS

Pleaser Spring Co. Ltd., McEvoy St., Alexandria, Sydney, MI 2534 Transformers (66 kv. and 22 kv.), (Spec. 50-51/3). Extended to Oct. 11.

Transformers (66 kv), (Spec. 50-51/3). Oct. 11.

Warm Air Heating and Ventilating System (Spec. 50-51/93). Oct. 4.

STATE RIVERS AND WATER SUPPLY COMMISSION

Structural Steelwork for girders and handrails. Oct. 10.

MISCELLANEOUS.

Annual Stores: Cement; Hard-ware; Lubricating Oils; Concrete Pipes and Sections and Motor Spirit, for City of Williamstown.

Filtration and Chlorination Plant, for Shire of Birchip. Oct.

Pressure Water Pipes and Fit-tings (12 inch), 16,600 ft., for Hor-sham Waterworks Trust. Oct. 2.

Water Filtration and Chlorina-tion Plant and Vacuum Cleaning Apparatus, for Shire of Ruther-glen. Oct. 4.

Traffic Control Signals, for City of Essendon. Oct. 16

Water Meters (50), 2 in., positive type, for Chiltern Waterworks

QUEENSLAND

BRISBANE CITY COUNCIL. O.H. Travelling Crane. Sept. 15.

Piping, h.p. steam, feed, drain, nd blowdown, valves and lagging. Oct. 20.

Ring Main Switchgear, 11 kV. Oct. 20.

Stationary Batteries and Charg-ing Equipment (159 amp. hours). Oct. 20.

(Turn to page 88.)

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CURRENT TENDERS - contd.

DEPARTMENT OF CO-ORDINATOR GENERAL OF PUBLIC WORKS.

Spillway Gates (8), Sector Type, 20 ft. x 23 ft., for Somerset Dam.

STATE ELECTRICITY COM-MISSION.

Air Break Switches and Earth Leakage Protection Equipment (Spec. 233). Oct. 25.

Coal Burning Gas Producers (8), (Spec. 227). Oct. 18.

Coal Burning Gas Producers (3), (Spec. 228). Oct. 18. Crane Runway (Spec. 172).

Nov. 15. Distribution Materials (Spec.

245). Nov. 1.

Fabricated Steelwork (Spec. Oct. 18.

Hard Drawn Bare Copper Cable

(Spec. 243). Oct. 25. Irisulators and Insulator Iron-work (Spec. 244). Oct. 25. Main Transformers, 132, 66, 22, 11 and 5.5 kV. (Spec. T/F.2). Dec.

Radio Communication Equip-ment (Spec. 237). Oct. 4. ment (spec. 237). Oct. 4.
Switchgear: (182, 66, 22, 11 &
5 KV), Relays and Carrier Current Communication Equipment
(Spec. T.F./3). Dec. 13.
Transformers, 3 phase and single
phase (Spec. 241). Dec. 4.

phase (Spec. 241). Dec. 6.

Turbo-Alternators (2), water-driven, 11,000 V., 18,000 kW (Spec. T/F.1). Nov. 29.

Water Tube Boilers (Spec. 224).

MISCELLANEOUS.

Alternators (2), Crude Oil Engine Driven, 100 h.p. engine; Switchboard, Air Becelver, Compressor and Spares, for Cairna Regional Electricity Board. Oct.

Engine-driven Alternator Sets (2), 756 KW, complete, for Cairns Regional Electricity Board. Oct.

Miscellaneous Materials: Pipes Miscellaneous Materials: Fipes and Fittings, various sizes; Special Pipes, Valves and Fittings, var-ious sizes; Centrifugal Pumps; Electric Motors and Equipment, for Bundaberg City Council. Oct.

Switchgear, Relays and Instruments, for Cairns Regional Elec-tricity Board. Dec. 6.

WEST AUSTRALIA

GOVERNMENT TENDER BOARD.

Caravan, for Public Health Dept. Dental Service. Oct. 12. Electric Generating Diesel Electric Ge Piant, for S.E.C. Oct. 12. Diesel Mechanical 8 Shunting,

Locomotives. Oct. 5.



MEASURING COAL WASHERY WATER

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Fork Lift Trucks, for State Brickworks. Extended to Oct. 19. Lathe, Grinders, Welders, Drills, Air Compressors, for Railways Dept. Oct. 12.

Motors and Starters, for S.E.C. Sept. 28.

Railway Ca Tyres. Oct. 12. Car and Waggon

Sluice Valves (15 & 21 inch), for Mt. Yokine Reservoir, Sept. 28. Steam Raising Plant, for Col-

lie Power Station. Dec. II. Steel Sections, for Railways. Nov. 16.

Transformer (50 KVA), for Norseman. Sept. 28.

Transformer (1,500 KVA), for S.E.C. Oct. 19.

TASMANIA

MISCELLANEOUS.

Materials:—C.I. or Asbestos ement Pressure Pipes; Valves; I. Pipe Specials; Pumping Cement C.I. Pipe Specials; Pumping Plant, for Municipality of Kentish. Oct. 9.

NEW ZEALAND

HYDRO ELECTRIC DEPART-MENT.

Control and Protective Equipment, for Cobb River Station, Nelson district (Quot. 2080). Oct. 25. Filtration Plant at Tauranga Borough Council. Nov. 28.

Synchronous Condensers (2), Synchronous Condensers (2), 30,000 KVA. Nov. 21. Transformer Bank and Spare Unit, 10,000 KVA. Oct. 2. Transformer Banks and Spare Units (2), 50,000 KVA. Oct. 10.

MISCELLANEOUS.

O.H. Electric Cranes (9), 2-ton, or Wellington Harbour Board. for We Oct. 4.

Late Open Tenders

COMMONWEALTH

DEPARTMENT OF PUBLIC WORKS.

Cool Room Type Refrigerators. Oct. 6.

(Turn to page 89.)

AUSTRALIAN MADE, FROM AUSTRALIAN MATERIAL Specify "LYSAGHIT'S" WIRE, WIRE NETTING, Etc.

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LATE OPEN TENDERS-Contd.

Gas Fired Room Heaters. Oct.

Runway Trolley. Oct. 6. Steam Heated Autoclave. Oct.

Steam Heated Stockpots. Oct.

Sound Equipment. Oct. 6.

DEPARTMENT OF WORKS AND HOUSING. Rooting Machine. Oct. 3.

NEW SOUTH WALES

MISCELLANEOUS.

Fordson Tractor, pneumatic-tyred, 1937 model, Purchase of, from Shire of Kogarah. Oct. 6.

VICTORIA

DEPARTMENT OF PUBLIC WORKS.

Refrigerators, for Shepparton. Oct. 3

QUEENSLAND

DEPARTMENT OF WORKS AND HOUSING.

Automatic Fire Alarm System, for Eagle Farm. Oct. 3. BRISBANE CITY COUNCIL.

Weatherproof Copper Aerial Cable (Con. E.23/1950). Oct. 13.

MISCELLANEOUS.

Tip Truck, 3-4 yds. cap., with ydraulic hoist; farm tractor, 18hydraulic 25 h.p., with power lift and grader blade; scoop, jacking system; 11 in. tyres, for Stanthorpe Shire in. tyres, for Council. Oct. 5.

Tractor, approx. 60 draw-bar h.p., with overhead loader, approx. 11 cub. yds. cap; tractors, approx. 40 draw-bar h.p. (2), for Balonne Shire Council. Oct. 6.

SOUTH AUSTRALIA

GOVERNMENT RAILWAYS
DEPARTMENT.

Axles, steel, for locomotives (6).

POSTMASTER-GENERAL'S DEPARTMENT.

Turret Punch Press, has operated (Sch. 960). Oct. 13.

WEST AUSTRALIA

GOVERNMENT TENDER BOARD.

Pumping Machinery, for Kalamund Pumping Station (Sch. 499A). Nov. 9.

Transformers, 5 kVA and 10 kVA (Sch. 507A). Oct. 12.

NEW SUBSIDIARY FOR H. H. WEBB & CO. LTD.

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Floor, Railway House, 19 York
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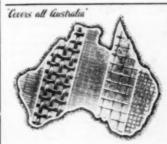
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S. R. NICHOLAS. Secretary for Railways.



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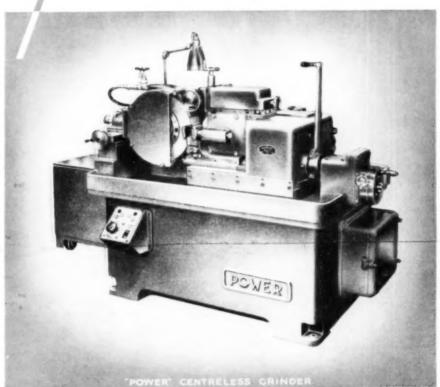
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